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New England Water Works Association
1961-1962

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THE Association was organized in Boston, Mass., on June 21, 1882, with the object of providing its members with means of social intercourse and for the exchange of knowledge pertaining to the construction and management of water works. From an original membership of only TWENTY-SEVEN, its growth has prospered until now it includes the names of over 1000 men. Its membership is divided into six classes, viz.:

A Member shall be an officer or employee of a public or private water works, an engineer, chemist or other person qualified to aid or interested in the advancement of knowledge relative to water works.

An Honorary Member shall be a person of acknowledged eminence in some branch of water supply or of engineering.

A Junior shall be not less than eighteen years nor more than twenty-five years of age, a student or connected with water supply work.

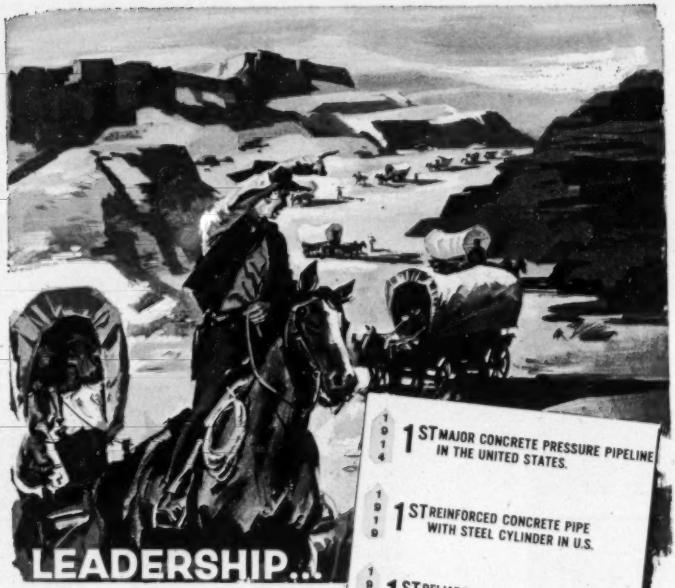
An Associate shall be either a person, firm or corporation engaged in manufacturing or furnishing materials or supplies for the construction or maintenance of water works.

A Corporate Member shall be either a Water Board, Commission, Company or Municipal Corporation.

The initiation fees and annual dues are as follows:

	Initiation Fees	*Annual Dues*
Members	$ 3.00	$ 8.00
Juniors	1.00	3.00
Associates	10.00	25.00
Corporate Members	10.00	15.00

This Association has at least eight regular meetings each year, of which five are held in Boston, one in northern New England, one in southern New England, and one, the annual convention, held in September or October on such date as the Executive Committee may designate.



Through Achievement

Pioneering new frontiers calls for leadership. LOCK JOINT PIPE COMPANY, pioneer in the field of concrete pressure pipe, has placed its name on every important milestone that marks the industry's progress.

1914 — 1ST MAJOR CONCRETE PRESSURE PIPELINE IN THE UNITED STATES.

1919 — 1ST REINFORCED CONCRETE PIPE WITH STEEL CYLINDER IN U.S.

1923 — 1ST RELIABLE EXPANSION JOINT FOR CONCRETE PRESSURE PIPE.

1935 — 1ST "O" RING TYPE RUBBER GASKET JOINT FOR PRESSURE PIPE.

1942 — 1ST PRESTRESSED CONCRETE PIPE WITH STEEL CYLINDER.

1961 — **NOW— a new, NON-CYLINDER prestressed concrete pressure pipe—product of 56 years experience in the manufacture of concrete pipe, and developed through 24 years of research and 10 years of service testing in actual water works systems.**

For information, write for the brochure on:

LOCK JOINT PRESTRESSED CONCRETE PRESSURE PIPE

Lock Joint Pipe Co. • East Orange, N. J.

Member of The American Concrete Pipe Association and The American Concrete Pressure Pipe Association

Assurance of continuity of service

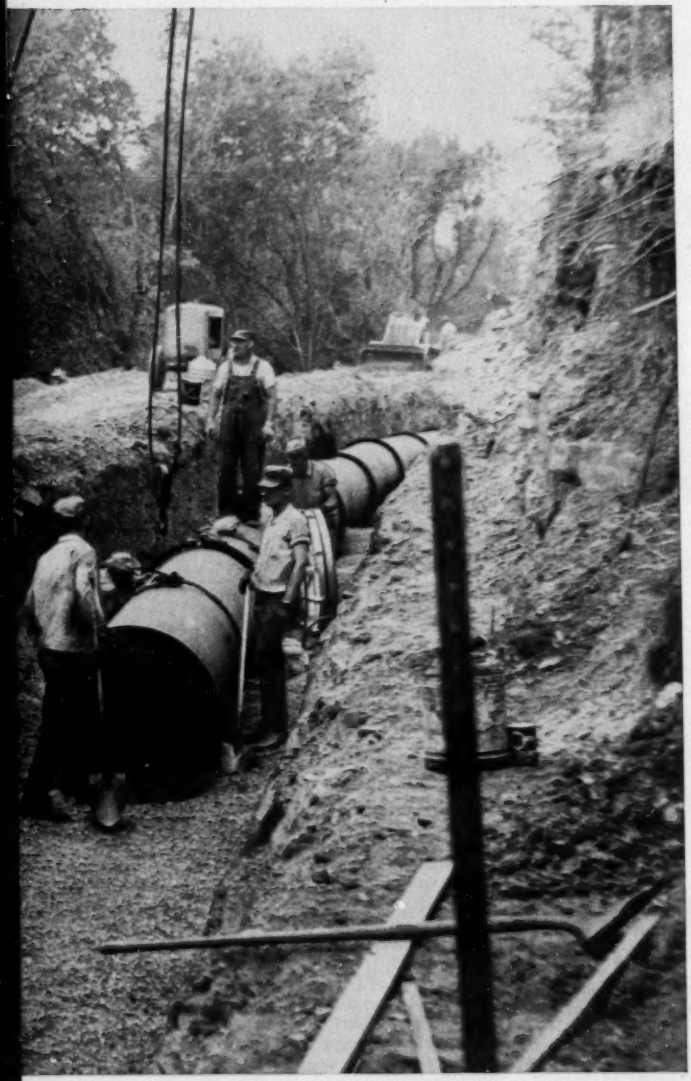
Cement-lined cast iron pipe always delivers a full flow of water and rarely requires repair. These two features alone offer ample assurance of water when you most need it.
But there are other reasons also:

Cast iron pipe is flexible enough to permit deflection, both during and after installation; yet, its bottle-tight joints are tight enough to resist hundreds of pounds of pressure.

Rugged cast iron pipe withstands common disturbances such as overhead traffic, ground movement and water hammer; it installs easily; it performs efficiently day after day . . . and will continue to do so for over a century.

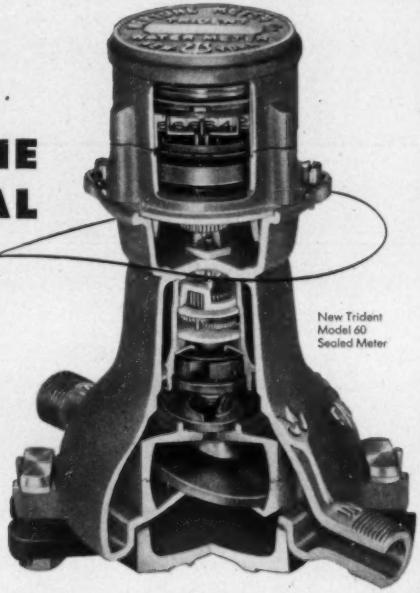
CAST IRON PIPE
THE MARK OF PIPE THAT LASTS OVER 100 YEARS

CAST IRON PIPE RESEARCH ASSOCIATION
Thos. F. Wolfe, Managing Director
3440 Prudential Plaza, Chicago 1, Illinois



When you open the water meter bids...

ADD UP THE TRUE TOTAL



New Trident Model 60 Sealed Meter

BID PRICE

+

OTHER COSTS:

Revenue losses

Repairs

Obsolescence (if any)

THEN make the best buy...

A water meter should be a lifetime purchase. Its price tag gives only *part* of its cost. Look instead for *true annual costs:*

First, think of revenue loss. A meter returns 12 to 20 times its price before its first check-up. A slight slip in accuracy loses more money than you "save" in a low bid.

Secondly, meters must be tested regularly. One that checks OK *without* repairs obviously is worth more. In the long run, the meter that is *easiest* to repair is also worth more.

Finally, with most meters you must add obsolescence. But not with Trident. A Trident constantly modernizes itself. All design improvements are made to fit older Tridents too; you get them *automatically* as you insert replacement parts.

Trident meters are designed not for low bid but for low true annual cost. That's why Trident is always your "best buy."

neptune
METER COMPANY

LIQUID METER DIVISION
47-25 34th Street, Long Island City 1, N.Y.

OFFICES IN PRINCIPAL CITIES
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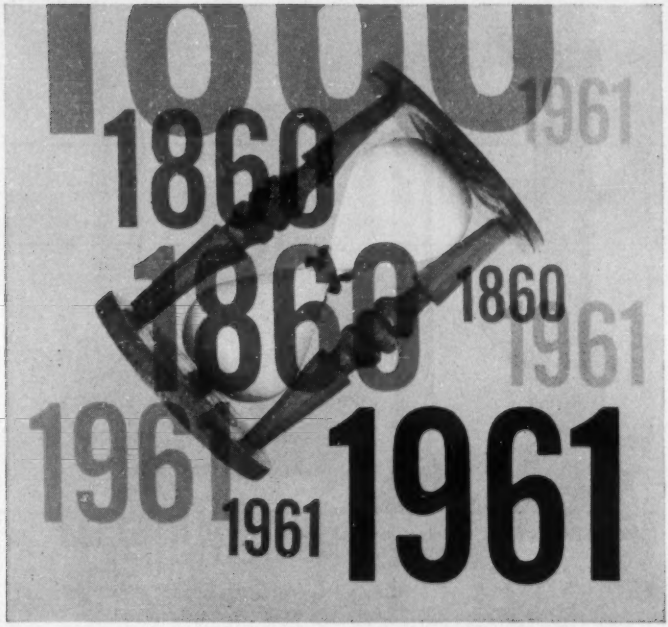


WHEN BUYING HYDRANTS LOOK FOR A MANUFACTURER WITH AT LEAST 100 YEARS' EXPERIENCE

Age has its advantages when you are dealing with fire hydrants, because hydrants must provide many years of reliable service. When a manufacturer has been in business a hundred years or more, the quality of his products is well known.

R. D. Wood hydrants have stood the test of time. There are more than a million of them in use right now. This says a great deal for the excellence of the product and the reliability of service.

When you deal with R. D. Wood (over 100 years in the hydrant business) you have the comfortable feeling that we will still be around when your equipment needs service or even replacement.

Conform to A.W.W.A. specifications

R. D. WOOD COMPANY

FLORENCE, NEW JERSEY

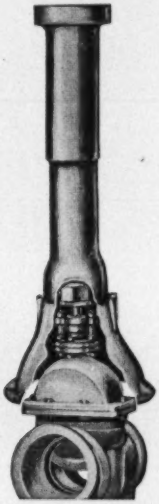
Established in 1803

Manufacturers of "Sand-Spun" Pipe (centrifugally cast in sand molds)

2 Piece Sliding Type
Adjustable Valve Box

2 1/2 or 3 Inch
Heavy Duty
Service Box

2 1/2 Inch
Service Box



3 Piece Screw Type
Adjustable Valve Box

The Three "Bigs" in Buying

1. *Standardization*
2. *Dependability*
3. *Quick Delivery*

ESTABLISHED 1849

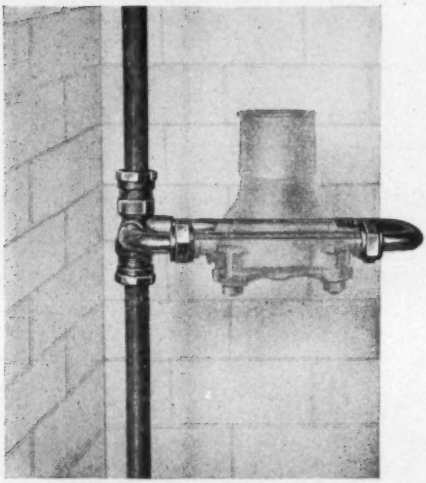
BINGHAM & TAYLOR

CORPORATION

GENUINE BUFFALO
CAST IRON SERVICE, VALVE, ROADWAY AND METER BOXES

MANHOLE FRAMES AND COVERS

CULPEPER, VA.



For Setting Meters in Basements

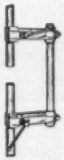
EASY TO INSTALL

The KORNERHORN

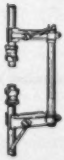
In a vertical basement pipe, against the wall or in a corner, the Kornerhorn makes a most satisfactory meter setting. Installation is fast and economical as pipe threading is eliminated. Send for detailed information.

When Valves are Needed

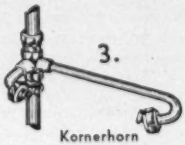
Ford Kornerhorn valves installed on the supply side, or on both sides of the Kornerhorn add extra convenience and cleanliness when meters are changed.



1. Cut supply line. Clamp not necessary but convenient



2. Add Connections

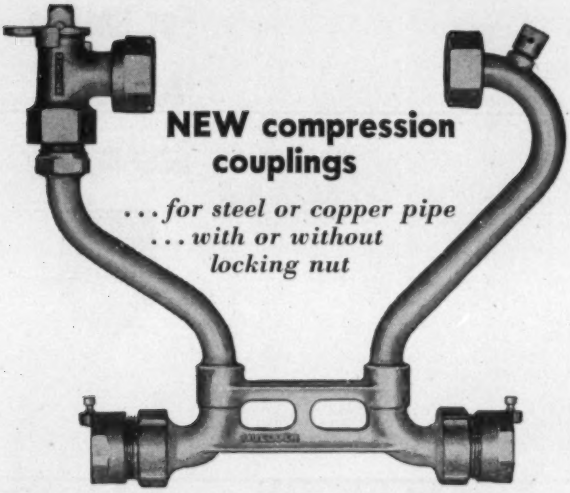


3. Kornerhorn in place

THE FORD METER BOX COMPANY, INC.

FOR BETTER WATER SERVICES **FORD**

Wabash, Indiana



NEW compression couplings

. . . for steel or copper pipe
. . . with or without locking nut

Quickly installed in old piping!

MUELLER® copper meter yokes

You can now install Mueller Copper Meter Yokes in any existing steel or copper piping in just a few minutes and without cutting threads or sweating joints.

Simply cut a short section from the pipe, slip the new Mueller Compression Couplings over the ends of the pipe, position yoke and assemble couplings to it and tighten the compression nuts.

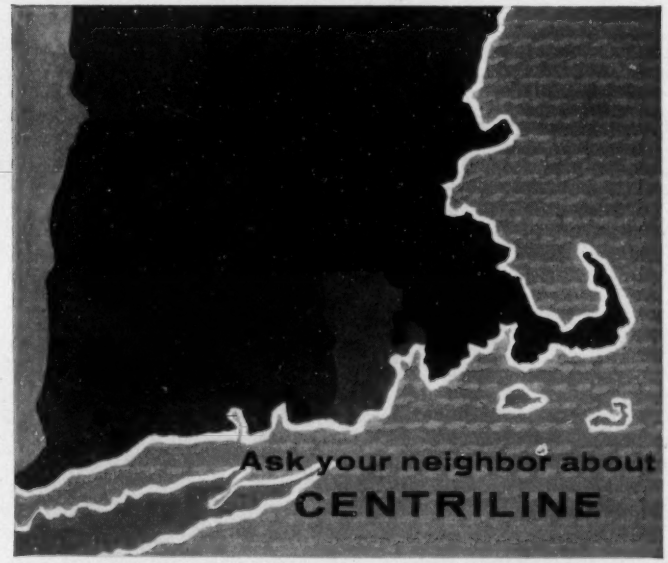
That's all there is to it with Mueller's new Compression Couplings. Permanent, water-tight joints are quickly made even on rough and badly pitted pipe. Possible trouble is avoided because the piping does not have to be moved.

These new, time-saving couplings are now available for all Mueller Copper Meter Yokes with Multi-Purpose Ends. Regular compression nut or locking nut designs can be furnished. The locking nut type positively prevents any movement of the yoke on the pipe and insures continuous electrical bonding of the service piping.

Copper Meter Yokes are just a portion of Mueller's complete line of quality-matched meter setting equipment. Write for complete information and specifications.

MUELLER CO.
DECATUR, ILL.

Factories at: Decatur, Chattanooga, Los Angeles; In Canada: Mueller, Limited, Sarnia, Ontario



Spotted on this map are some of the places that have been served by the Centriline Process

Chances are that one of your colleagues has rejuvenated some of his city's piping by Centriline reconditioning. Here's your chance to find out.

Briefly, this process smoothly lines piping—**in place**—with cement-mortar, creating a pipe-within-a-pipe. This vastly increases carrying capacity, stops leakage, prevents corrosion and tuberculation, and prolongs pipe life indefinitely. Pressure goes up, pumping cost goes down, and there's no need to disturb traffic to replace mains. Over 6,000,000 feet of piping, from 4" to 144" diameter, have been treated by Centriline.

ASK YOUR NEIGHBOR

Write today for a list of nearby officials whose cities have cut inconvenience and costs with this pipe-saving process. Hear what they have to say about Centriline. Then write or call us. We'll be glad to show you how Centriline can help **you** solve the problems of pipe reconditioning in place.

CENTRILINE CORPORATION

A Subsidiary of Raymond International Inc.

147 MEDFORD STREET • BOSTON 29, MASSACHUSETTS

Branch offices in principal cities of the United States, Canada, and Latin America.

very dependable

PATENTED SILICONE

STUFF-ING BOX PACKING

a name to remember

WATCH DOG

simple to maintain

Split case or frost proof

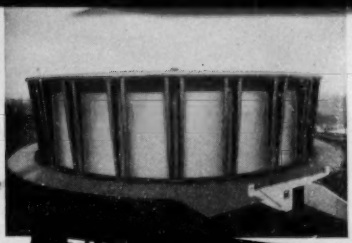
Offices in principal cities

GAMON METER DIVISION

NEWARK

WORTHINGTON

NEW JERSEY



A striking example of fine appearance and exacting craftsmanship is this PDM Steel Reservoir built for the Municipal Authority of the Borough of West View, Pa., in a high-value residential district. An entire hilltop was removed to make room for the 5,000,000 gallon structure, special architectural detailing employed for visual appeal, and a two-tone blue color scheme applied to complete a most unusual and applauded neighborhood feature. • Do you have a particular water storage problem? Let us discuss it with you!

THE CONSTRUCTION QUALITY TELLS YOU it's Pittsburgh-Des Moines

5,000,000 Gallon Reservoir, 150 ft diameter by 40 ft high, built for the Municipal Authority of the Borough of West View, Pa. in Ross Twp., Allegheny County. Structure designed by William Murdoch, Consulting Engineer, Pittsburgh, Pa.

PDM STEEL RESERVOIRS

Pittsburgh-Des Moines Steel Company

Plants at PITTSBURGH, WARREN, BRISTOL, PA. • BALTIMORE • BIRMINGHAM • DES MOINES PROVO, UTAH • CASPER, WYO. • SANTA CLARA, FRESNO, STOCKTON, CALIF.

Sales Offices:

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NEWARK (2)	744 Broad St.	SEATTLE (1)	Suite 332, 500 Wall St.
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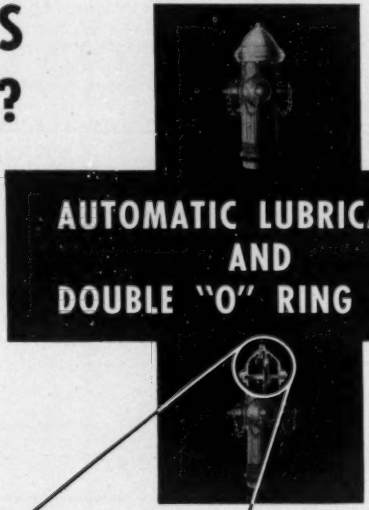
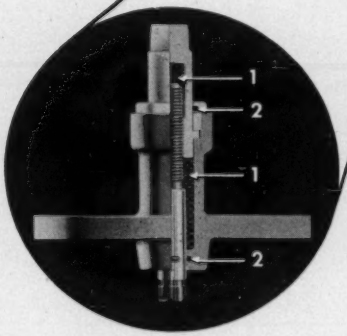
ATLANTA (5)	361 E. Paces Ferry Rd., N.E.	EL MONTE, CALIF.	P. O. Box 2012
JACKSONVILLE (7)	4066 Ferrarra Road	PROVO, UTAH	P. O. Box 310

WHAT'S INSIDE? A BIG PLUS





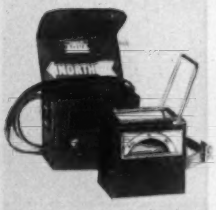
Smith Fire Hydrants are easy to operate, inexpensive to maintain and most dependable in meeting severe climate and operating conditions. In addition to maximum flow and simplicity of design, Smith Hydrants now have two additional features of major importance: (1) Automatic lubrication — chamber sealed with "O" Rings contains a permanent type lubricant — temperature range–30° to 200°F. Each time the hydrant is operated, the threads and bearing surfaces are automatically lubricated. (2) "O" Ring Seals — the lower "O" Ring seals the internal pressure, the upper "O" Ring is a combined external dirt and moisture seal. This construction eliminates the conventional stuffing box and packing gland adjustments.

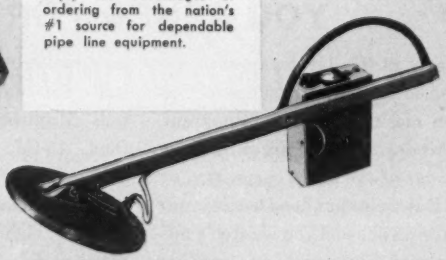
65

FIRE HYDRANTS · VALVES · SINCE 1896

THE A.P. SMITH MFG. CO.

EAST ORANGE, NEW JERSEY





"Only The Best"

For ordering dependable and proven pipe line equipment, consult your latest Pollard Catalog #27.

Included in the #27 Catalog, and displayed on this page, are the M-Scope Transistorized Combination Leak Detector and Pipe Locator, Audio-Scope, Geophone Leak Detectors, T-10 Electronic Box Locator, Aqua Valve Box Locator and Magnetic Dipping Needles for locating service boxes.

Hundreds of water departments all over the country are using Pollard "one order" service. You, too, can enjoy the advantages of ordering from the nation's #1 source for dependable pipe line equipment.

PIPE LINE EQUIPMENT

JOSEPH G. POLLARD CO., INC.

PIPE LINE EQUIPMENT

PIPE LINE EQUIPMENT

Place your next order with POLLARD

If it's from POLLARD It's the Best in Pipe Line Equipment

NEW HYDE PARK • NEW YORK

Branch Offices: 964 Peoples Gas Building, Chicago, Illinois
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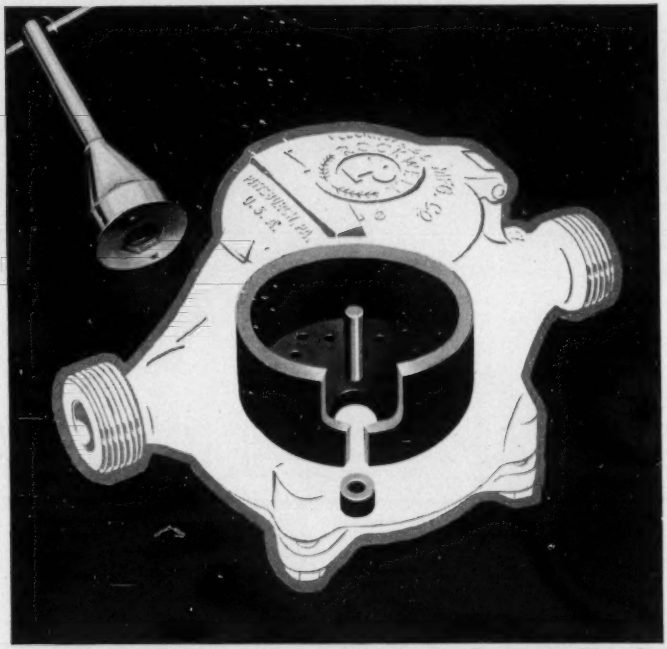
PHONE: PIONEER 6-0842



Only 2 Working Parts and a Wrench

YOU ASKED FOR IT!

Early in the development of our Sealed Register* "magnetic" meter, one thing became apparent. *This design would practically put us out of the parts business.*

But we went ahead because our surveys showed you wanted a meter with fewer parts and one that would be easier and more economical to repair.

Now you can benefit from a *two part inventory.* A wrench is the only tool required. Let our representative prove this to you or write for bulletin W-811. Rockwell Manufacturing Company, Dept. 164M, Pittsburgh 8, Pa. In Canada, Rockwell Manufacturing Company of Canada, Ltd., Box 420, Guelph, Ontario.

**Trademark*

Imitated but never equalled

SEALED REGISTER* METERS
another fine product by
ROCKWELL

Warren Foundry & Pipe Division

of

SHAHMOON INDUSTRIES, INC.

Manufacturers of

CAST IRON PIPE & FITTINGS

Made in Accordance with Latest Specifications

Including TYTON Joints

Either Cement Lined or Tar Coated

Pipe Made in Everett — Centrifugally Cast in Sand Lined Molds in 16′ L/L

Pipe Made in Phillipsburg — Centrifugally Cast in Metal Molds in 18′ L/L

PROMPT DELIVERIES

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PLANTS

Everett, Mass.
Phillipsburg, N. J.
Ore Mines — Crushed Stone at
Dover, N. J.

"Could you fetch it
a little quicker Gran'maw
Tyton lays mighty fast y' know"

U.S.
cast iron
PIPE

FOR WATER, SEWERAGE AND

stays ahead of the job

No need for your ditcher to dally . . . . .

Tyton Joint® pipe keeps pace . . . stays right with your laying crew. Even in rain or wet trench. "Tyton" is so simple, so easy to handle. Only one accessory needed—a rubber gasket. No bell holes, nuts, bolts or caulking equipment.

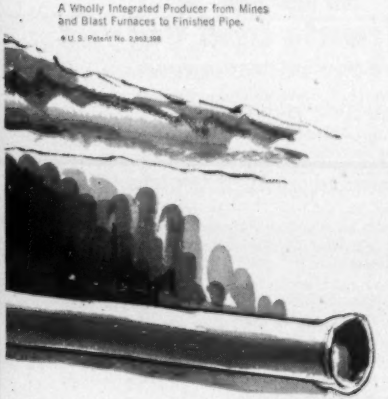
"Tyton" goes in fast . . . cleans up fast. And **you** get the benefit—lower costs, more lengths laid per man.

Get the full, money-saving story today. Call or write:

U. S. PIPE AND FOUNDRY COMPANY
General Office: Birmingham 2, Alabama

A Wholly Integrated Producer from Mines and Blast Furnaces to Finished Pipe.

♦ U. S. Patent No. 2,953,398

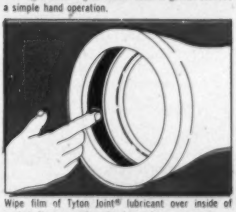


INDUSTRIAL SERVICE ® CAST IRON

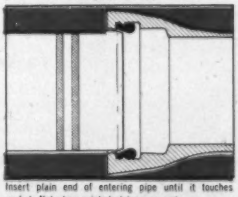
TYTON®

ONLY FOUR SIMPLE ACTIONS

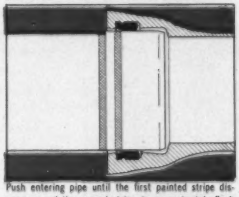
Insert gasket with groove over bead in gasket seat . . . a simple hand operation.



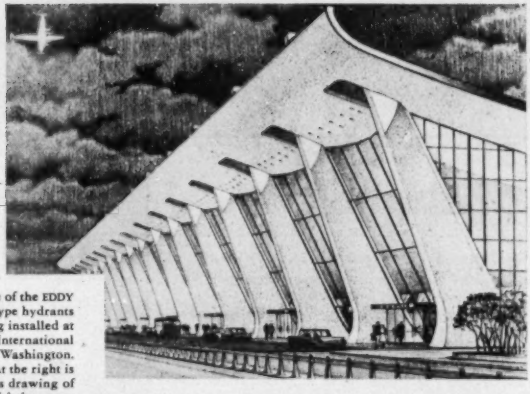
Wipe film of Tyton Joint® lubricant over inside of gasket. Your receiving pipe is ready.



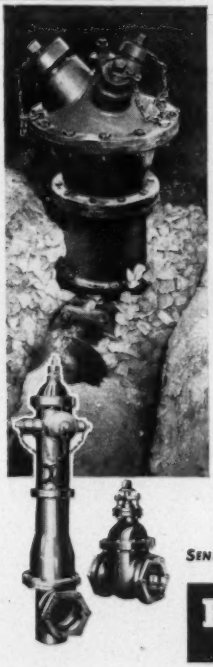
Insert plain end of entering pipe until it touches gasket. Note two painted stripes on end.



Push entering pipe until the first painted stripe disappears and the second stripe is approximately flush with bell face. The joint is sealed . . bottle-tight, permanently! The job's done . . . . fast, efficiently, economically. Could anything be simpler?



One of the EDDY flush type hydrants being installed at Dulles International Airport, Washington. At the right is artist's drawing of fabulous new terminal building.



"Gateway to America" installs

EDDY

Hydrants and Valves

to serve new jet-age airport

A jet-age showplace is taking shape in Virginia, just a few miles from the capital...the new Dulles International Airport, which the Federal Aviation Agency has called the "Gateway to America."

Material for every facility at this multi-million dollar airport has been selected with the utmost care and meets federal specifications. The choice of EDDY hydrants and valves for controls in this all-important waterworks and fire protection system is a tribute to the precise, long-life performance of these products.

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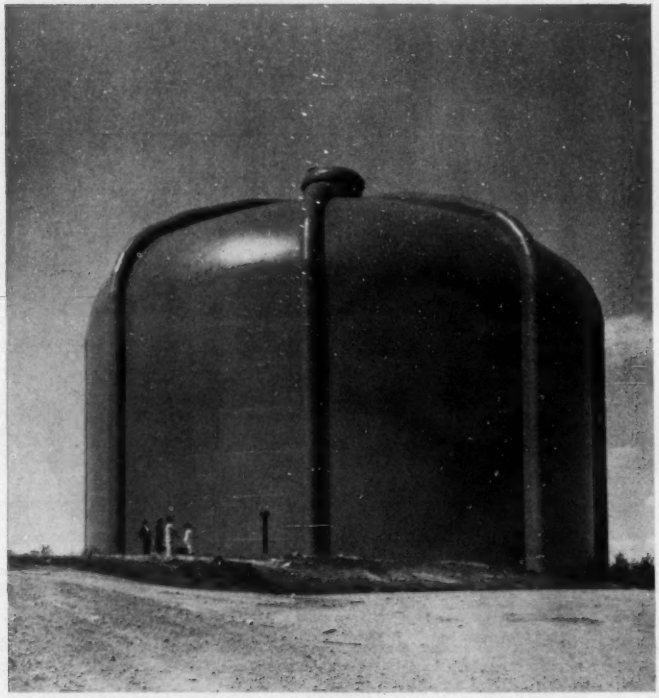

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NEEDHAM AND MARLBOROUGH CONNECTIONS TO METROPOLITAN DISTRICT COMMISSION WATER SYSTEM

BY ROBERT T. KOOPMAN*

[*Read December 15, 1960.*]

This paper deals briefly with the design of the facilities employed for supplementing the water supplies of two communities in Massachusetts, Needham and Marlborough, through the use of the Metropolitan District Commission Water System.

For Needham, this involved the design of pumping facilities and connections to two MDC Aqueducts: the Sudbury Aqueduct and the Hultman Aqueduct. The points of connection have a difference in their respective hydraulic gradient levels of approximately 140 ft.

For Marlborough, this involved primarily, in addition to pumping facilities, a 16-in. tap into a pressure section of the Hultman Aqueduct which, at the point of connection, has a diameter of 150 in.

The location of the connections to the MDC Water System for these communities is shown in Fig. 1.

NEEDHAM

Prior to connecting to the MDC system, Needham had been obtaining its entire water supply from wells located within the town. The safe yield of these wells was estimated at 3.5 million gallons per day. Of this, 3 mgd. was obtained from gravel-packed wells at the Charles River Pumping Station located at the Needham, Wellesley and Dover town lines. The remaining half-million gallons was obtained from two large-diameter dug wells located just east of Dedham Avenue north of the Charles River.

*Project Engineer, Metcalf & Eddy, Statler Bldg., Boston 16, Mass.

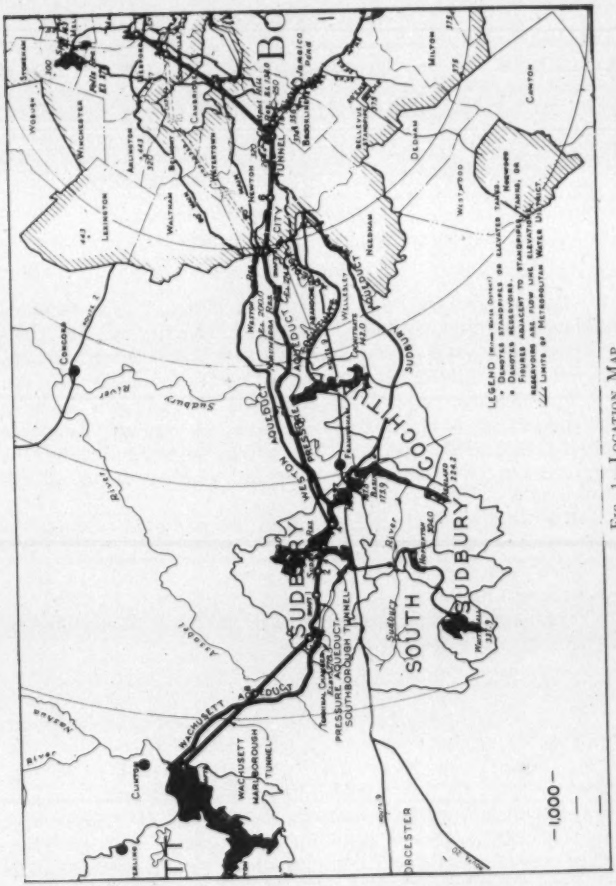


FIG. 1—LOCATION MAP

Prior to 1954, it had become evident that the community's water supply would be inadequate to meet the future demands of a rapidly growing population. It was anticipated that by 1975, the average daily consumption would be approximately 4 mgd. with a maximum day of 10 mgd.

Investigations were made into the possibility of constructing additional well supplies along the Charles River. These investigations showed that it would not be advisable to rely on additional wells to meet the future requirements of the town.

Consideration was then given to connecting to MDC. The law pertaining to the admission of a community to the MDC Water System reads in part: "Any town within 10 miles of the State House may upon application and the payment of an entrance fee, become a member of the Metropolitan Water District." Needham being such a town was eligible to become a member.

Interviews with the Director of the MDC Water Division, however, indicated that because the MDC did not have personnel available at that time to undertake additional work, it would be impossible to provide a connection to the Hultman Aqueduct until other MDC construction and improvements had been completed. It was suggested, however, that the Sudbury Aqueduct could be used as a supplementary source of supply until such time as the District would be able to construct a connection from the Hultman Aqueduct to Needham.

The Sudbury Aqueduct, a gradeline cut-and-cover gravity aqueduct, is used by the MDC to supplement its main supply during days of heavy demand. It was decided that to connect to this aqueduct, it would not be necessary for Needham to join the MDC system, which would require the payment of an entrance fee.

Since Needham was in need of immediate additional water supply, it was decided to make the connection to the Sudbury Aqueduct and to install a temporary pumping station adjacent to where the aqueduct passes next to the abandoned Eliot Schoolgrounds in Needham, south and west respectively of the intersection of Route 9 and Route 128. The temporary pumping station would be in full operation until after completion of a

permanent pumping station, when it would then be used as a standby unit.

In the spring of 1954, equipment specifications were prepared and materials ordered. A deep-well turbine type pump had been selected for its space-saving characteristics. Construction plans were drawn up as soon as possible and installation bids were received for construction.

The connection to the Sudbury Aqueduct was made by cutting through the brick wall of the aqueduct, as shown in Fig. 2, after dewatering through special arrangements with the MDC.

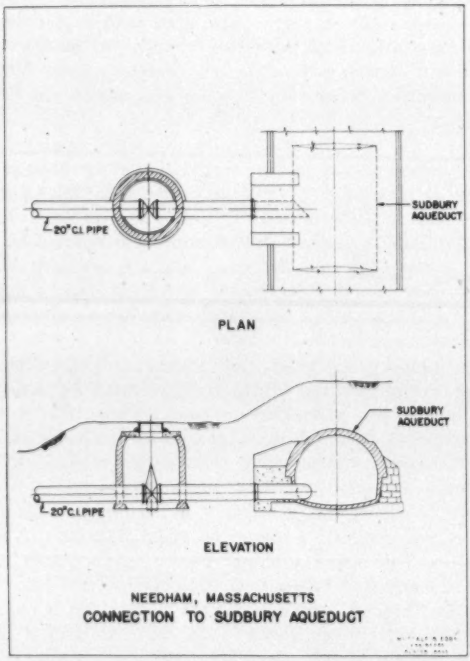


FIG. 2

The cost of the connection to the aqueduct, the temporary pumping station and the venturi vault came to approximately $32,800. Of this, the cost of cutting the hole through the aqueduct and making the connection was approximately $1,500. The venturi vault and its bypass with the valves and appurtenances which were to be reused when the connection was to be made to the Hultman Aqueduct cost approximately $10,000.

This temporay station was placed in service in September of 1954.

By 1957, the MDC was in a position to devote time to the Hultman connection for the town of Needham. Accordingly, plans were prepared by Metcalf & Eddy for a permanent pumping station to be located adjacent to the temporary station. When completed, this station would be capable of pumping from either the Sudbury Aqueduct or the Hultman Aqueduct. Formal application for admission to the MDC system was made by Needham and preparations were made by the MDC to provide a connection from the Hultman Aqueduct.

The admission fee for the town of Needham was $132,815. This amount is being paid over a ten-year period, interest free.

Plans and specifications were prepared by the MDC for the connection from Shaft 5 of the Hultman Aqueduct at Weston to the location of the permanent pumping station at the Eliot Schoolgrounds in Needham. In anticipation of the possibility of some day supplying the nearby community of Wellesley, the MDC selected for the connection a combination of 48-in. and 36-in. pipe.

Total cost for these mains and the connection at Shaft 5 was $1,042,235.52 of which Needham is paying $846,221.96. This represents 75 percent of the cost of the 48-in. line and full payment for the 36-in. line.

The design of the permanent pumping station was complicated somewhat by the desirability of having equipment that could pump from either the Hultman Aqueduct or the Sudbury Aqueduct. It was planned that the Sudbury Aqueduct would serve as a standby source of water supply after the Hultman connection was made. Differences in static levels between these two aqueducts posed an additional problem in the selection of

the pumping equipment—for the hydraulic gradient in the Sudbury Aqueduct is approximately 140 ft. lower than that in the Hultman Aqueduct.

These conditions of design led to the selection of horizontal, double-suction, single-stage, split-case pumps that could be

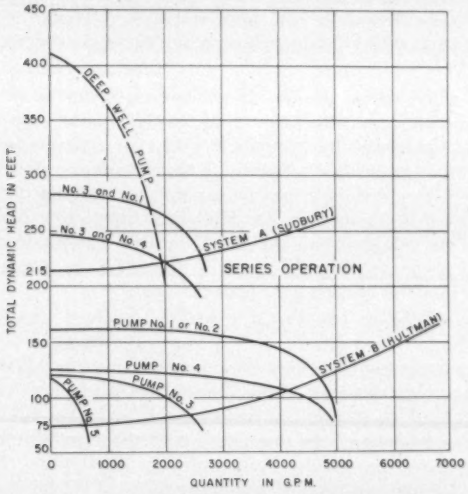


FIG. 3

operated either in parallel or in series through special valving arrangements. The pumps normally will be operated in parallel when drawing from the Hultman Aqueduct; when the Sudbury Aqueduct is to be used, the pumps will be operated in series. The system and pump characteristic curves in Fig. 3 show the effect of both parallel and series operation.

The pump arrangement and the flow diagram for either parallel or series operation are shown in Fig. 4.

The pumps were furnished by the Warren Pump Company. Automatically controlled, hydraulically-operated butterfly valves are used as check valves to prevent surges during the starting and stopping of the pumps. These were furnished by the W. B. Parsons Company.

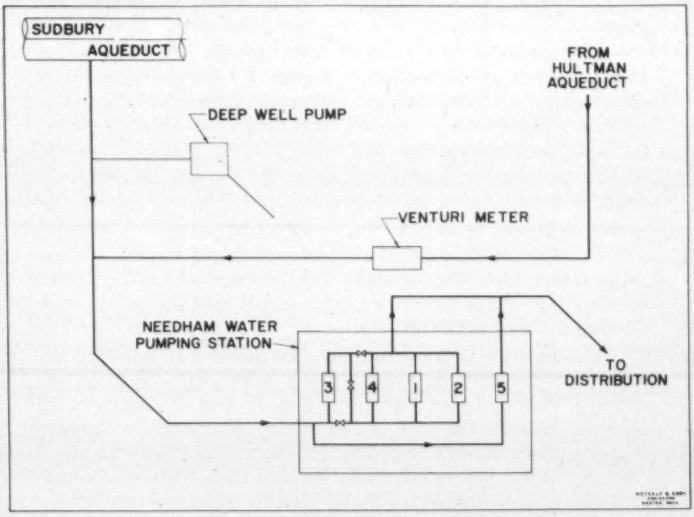


FIG. 4—FLOW DIAGRAM FOR EITHER PARALLEL OR SERIES OPERATION

The 38-ft. by 47-ft. pumping station consists of a one-story brick-and-tile superstructure with basement and is of contemporary architectural design. The ground floor houses two of the pumps and the chlorination facilities; the basement contains the remaining three pumps, two of which have diesel auxiliary drives.

The station was constructed by the R. H. White Construction Company, Inc., of Auburn, Mass. at the cost of approximately $165,000.

Marlborough

Presently, Marlborough obtains its water from two surface supplies, Millham Reservoir and Lake Williams. Millham Reservoir is relatively free from pollution hazards and is the main source of supply. Lake Williams, however, is close to a busy highway (Route 20) and is rapidly being encroached upon by new residences. At present, it is used only to meet peak demands of the system. These supplies are at times subject to taste and odor.

The combined safe yield of both supplies is approximately 2.0 mgd. Since it is anticipated that by 1975 the average daily consumption will be 2.25 mgd. with a maximum-day demand of 4.5 mgd., the existing supplies would be inadequate to meet the future needs of the city.

Before making application to the MDC, the feasibility of utilizing ground-water supplies was investigated in an attempt to find a means of augmenting the existing surface supplies.

In 1953, seismic surveys were undertaken by the Weston Seismological Observatory under the direction of Father Daniel Linehan, S.J. Eight areas were investigated, and the results were submitted in a report to the city.

The report indicated two possible areas that might prove worthy of further investigation. Test wells were driven in one area, but the results were not promising. Recommendations were made to abandon the idea of developing ground-water supplies as a permanent source adequate for the future needs of Marlborough. A further recommendation was made that application be made for admission to the MDC Water System.

Discussion with the Director of the Water Division led to final negotiations and admittance to the system. The admission fee was set at $75,630 and, as in Needham, was to be paid off over a ten-year period, interest free.

The amount of water to be taken from the MDC system by the city of Marlborough is limited to a maximum of 1.5 mgd. until such time as certain MDC improvements are completed. At that time, the city will be allowed to take, with no restrictions on the pumping rate, a maximum of 3.0 mg. each day. It is

anticipated that should the need for additional water rise, other working arrangements can then be made with the MDC.

The location for the connection was selected to be at the beginning of the Hultman Aqueduct, just downstream of the terminal chamber of the Wachusett Aqueduct.

The Hultman pressure aqueduct is constructed of 150-in. diameter concrete pipe laid in 8-ft. lengths. It was agreed that the pipe could be tapped under pressure to obtain suction supply for the new Marlborough pumps. The tap was to be made at the mid-point of a length of pipe.

Although it has become common practice for concrete pipe to be tapped under pressure, never before had this large a pipe been so tapped. Also, this was the first time to our knowledge that the MDC was to have one of its concrete pipes tapped.

Preliminary discussions with the Lock Joint Pipe Company, fabricators of the pipe, showed that there were two types of tapping saddles that could be used.

One type is a "partial" saddle which is welded to develop, in this case, a maximum of 60 ft. of working head.

The other type is a "full" saddle which completely encircles the pipe and develops the full design working head of the pipe itself which, in this instance, is 100 ft.

Although it is doubtful that the Hultman Aqueduct will ever be subjected to a working head of 100 ft., it was considered advisable to make all connections to the aqueduct capable of withstanding this original design head. Therefore, a full saddle was selected. Details are shown in Fig. 5.

Before the saddle assembly could be fabricated, however, it was necessary to make a plywood template of the curvature of the outer surface of the steel cylinder within the pipe wall at the location where the tap was to be made. The template was necessary in order to ensure a proper fit for a tight connection. Just enough concrete was cut away between two rows of circumferential steel in the pipe to allow the template to be made. In this instance the cut was approximately 24 in. long.

The pipe had been laid on a concrete cradle, which had to be removed at the tap location before connecting the saddle. It was necessary that it be removed carefully by using light-duty

jack hammers so as not to disturb the pipe which was under pressure. Payment for its removal was made on a per-cubic-foot basis, the unit price having been previously established by the contractor in his bid. The 72 cu. ft. of cradle removed came out only with extreme difficulty, a fact remembered only too well by the contractor.

Here, as in the design of the pumping facilities for Needham, we had some unusual static levels to contend with in the selec-

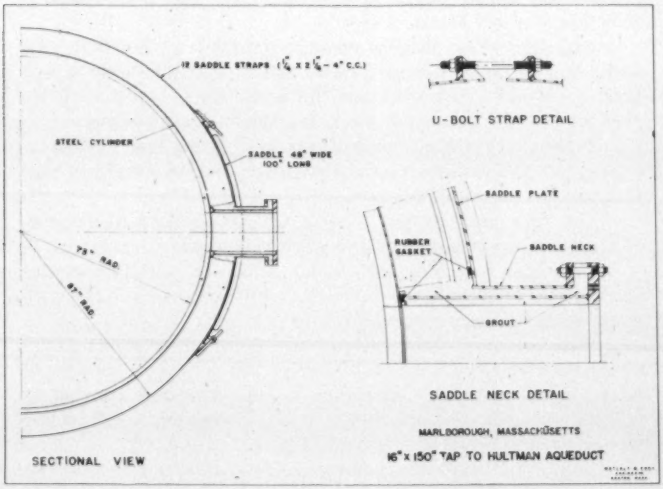
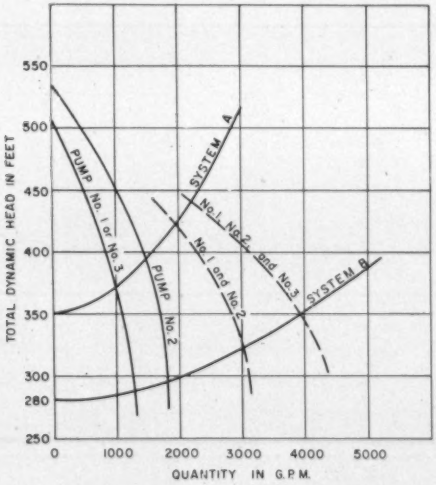


FIG. 5

tion of pumping equipment. In the first place, an increase of eventually about 40 ft. in hydraulic gradient at the tap-connection location will occur when new MDC improvements are completed. At that time, a valve at the Wachusett Aqueduct terminal chamber will be closed and the Marlborough-Wachusett tunnel will be connected from Shaft C to the Hultman Aqueduct shown in Fig. 1. In addition a higher system pressure will be effected by the new storage facilities called for in present plans

for development of Marlborough. All possible combinations of these conditions give us a 70-ft. range in static levels.

For this range, vertical deep-well turbine pumps were selected. As shown by the steepness of the curves in Fig. 6,



MARLBOROUGH, MASSACHUSETTS
WATER PUMPING STATION
SYSTEM AND PUMP CHARACTERISTIC CURVES
DECEMBER 1960
METCALF & EDDY
ENGINEERS
BOSTON, MASS.

FIG. 6

a characteristic of the deep-well pump is that it allows for a large change in pumping head with relatively little change in discharge.

The pumps are piped to a suction header instead of to a normally thought-of wet-well installation. There is one combina-

tion drive to provide auxiliary standby in the event of a power failure.

The pumps were furnished by Allis-Chalmers, as were the rotovalves which are being used as pump check valves to prevent surges in the pipeline.

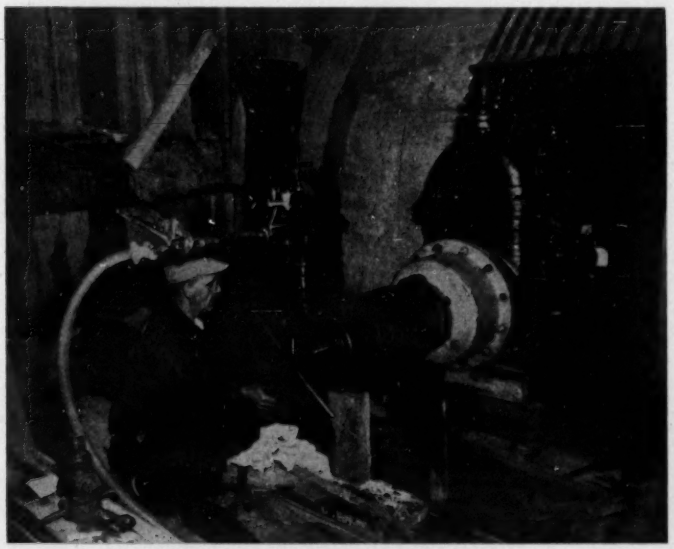


FIG. 7—TAPPING THE 16-IN. CONNECTION UNDER PRESSURE INTO THE SIDE OF A SECTION OF THE 150-IN. DIAMETER HULTMAN AQUEDUCT AT MARLBOROUGH

The Marlborough Station is under construction at present and is expected to be completed in February, 1961. (Ed. Note: The station was placed in operation in May, 1961.) It is located approximately 120 ft. north of the connection to the Hultman Aqueduct. The superstructure of the 26-ft. by 46-ft. station is constructed of brick and concrete block and contains chlorination and Calgon feed facilities.

The cost of the station, constructed by the R. H. White Construction Company, Inc., Auburn, Mass., was approximately $205,000 including the tap connection.

The tap connection to the aqueduct was made in November, 1960 (see Fig. 7). The tapping valve and machine were furnished by the A. P. Smith Mfg. Co. The cost of the connection was approximately $6,000 and can be broken down as follows:

Saddle & Valve	$3,475
Removal of Cradle	1,688 (bid, $288)
Tapping of Aqueduct & Installation of Saddle	900

To this should be added an estimated $6,000, which includes excavation, sheeting and construction of the valve chamber.

* * * *

Special acknowledgment is due here to those individuals whose willing cooperation made the successful execution of these projects at these two communities possible:

Mr. Harold J. Toole, Director of the Water Division and Chief Water Supply Engineer of the MDC, together with his staff,

Mr. Roger G. Oakman, Superintendent of the Needham Water Dept., and

Mr. Harry P. Loftus, Superintendent of the Water and Sewage Commission, Marlborough.

This has been an attempt to present some of the highlights of the design and construction problems encountered by two different communities in improving their water-supply systems. It is hoped that the solutions outlined here may in some measure suggest to other communities methods for solving their water-supply problems.

DEVELOPMENT OF THE NEW BRITAIN WATER DEPARTMENT

BY GEORGE W. WOOD*

[*Read April 20, 1961.*]

The water supply system of New Britain, Conn., was started in 1857 "for the purpose of protecting its property from Fire, and for other useful and ornamental purposes."

The original construction included the following:

Land purchase, 200 acres
Dam
Reservoir on Walnut Hill—one acre—12 feet deep, lined with cobble stones
1,300 feet of 10-inch pipe
23,100 feet of 8-inch pipe
20 gates
25 hydrants
Gate house
Cost, $37,812

The East Canal, constructed in 1883, and the West Canal, constructed in 1892, were for the purpose of diverting a number of small brooks into Shuttle Meadow Reservoir. These two canals doubled the watershed area tributary to the reservoir.

The original reservoir had a capacity of 400,000,000 gallons. The present capacity of this reservoir is 1,300,000,000 gallons.

The Wolcott pipe line was constructed in 1898 to bring water from Roaring Brook in Wolcott to Shuttle Meadow Reservoir.

The Whigville pipe line was constructed in 1908 to bring water from the Whigville Brook in Burlington to either Shuttle Meadow Reservoir or directly to the city.

There are two oddities about these two sources of supply. The first is that the two pipe lines were constructed first, and then about two years later in each case the reservoirs were constructed.

* Chief Engineer, Board of Water Commissioners, New Britain, Conn.

The second oddity is that whereas the Wolcott Reservoir of 170,000,000 gallons capacity has a watershed area of 2.5 square miles and is connected to Shuttle Meadow Reservoir by two 20-inch pipe lines with a carrying capacity of 11,000,000 gallons a day, the Whigville Reservoir of 64,000,000 gallons has a watershed area of 4 square miles and is connected to the city by a 24-inch pipe line with a carrying capacity of 5,500,000 gallons a day.

The White Bridge supply constructed in 1922 consisted of twenty 8-inch wells, a large well 50 feet in diameter, called the caisson, and a pumping station. The equipment in the pumping station consisted of a vacuum system, a 150-HP diesel engine, and a 2.8-mgd horizontal duplex pump.

In 1944 a new pumping station was constructed at this location. The equipment in the new station consists of two 300-HP diesel generating units and two 3-mgd pumps. A second well field known as Upper White Bridge was constructed and connected to the caisson at White Bridge. The old station was abandoned at this time.

At the time of the 1955 floods this station was put out of commission. Water stood about four feet deep at the switchboard. The generating units were partially under water, and the two pumps and their motors were completely submerged.

In 1958 the abandoned pump station was remodeled and equipped with six 3-mgd electric pumps. These pumps will pump water from the stream adjacent to the well field at times of high flows.

Connections are so installed that diesel power or electric power can be used in either station, and the well supply and the brook supply can be delivered to the system, to Shuttle Meadow Reservoir or to the filtration plant.

Because of increased home building in the northwestern section of the city, it became necessary to erect a 1.5-mg prestressed concrete standpipe in 1937. A small pumping station containing one 700-gpm pump was also constructed.

In 1950 this station was replaced by installing two 700-gpm pumps in an existing valve house on West Main Street.

In 1959 a new pumping station was erected on Corbin Avenue near Clinton Street. The two pumps at West Main Street

were transferred to this new station and a third pump was installed. At the present time a fourth pump is being installed in the new station.

In 1950 a 12-inch gravel-wall well was constructed in the northeastern section of the Town of Southington. This well, though only 32.5 feet deep, produced 1.0 mgd for a nine-month period during the drought of 1957.

An additional pipe line between White Bridge and the city, talked about for years, was finally constructed in 1958. This 36-inch concrete pressure pipe, about 6 miles long, in conjunction with the old 24-inch line now allows water to be diverted to the city from the Whigville Reservoir, from the White Bridge wells and from the White Bridge brook.

A small residential area in the southwestern section of the city required the construction of a booster station. This station, known as the Steele Street Booster Station, was constructed in 1958 and contains two 100-gpm pumps and one fire pump, all electrically powered.

In 1959 a 4-mg prestressed concrete tank was constructed adjacent to the 1.5-mg standpipe. This tank, however, floats on the low-service system, provides additional filtered-water storage and equalizes pressures.

The drought of 1957 awakened the city to the fact that the water supply was insufficient to satisfy its needs. An engineering firm was retained to study the situation, and in March, 1958, a complete report was received recommending certain steps to be taken.

The first step recommended was to obtain an emergency connection with the Hartford Metropolitan District Commission's supply. An agreement was finally arrived at between the two communities, a point of connection determined and work was started. This connection is now complete and consists of a pumping station at the foot of the Phelps Brook Dam at Nepaug Reservoir and five miles of 24-inch concrete pressure pipe, connecting to our existing system just below the Whigville Reservoir.

The equipment in this station consists of two 7.5-mgd pumps powered by two 260-HP diesels. By agreement the city of New Britain will be allowed to purchase 1,825 million gallons per year and divert water at a maximum rate of 10 million gallons per day.

It was also recommended that additional storage be obtained. The preferred location for this reservoir is at the beginning of the East Canal in an area known as Panther Swamp. This reservoir will require a dam and a dike and will store approximately 1,000,000,000 gallons.

Surveying parties are at work obtaining the necessary preliminary information for locating the structures and pipe-line rights of way.

At the present time an addition to our filtration plant is nearly ready to be put into operation.

TABLE 1—COMPARATIVE DATA ON NEW BRITAIN WATER SUPPLY, 1947 AND 1961

	1947	1961
Population served	75,500	95,000
Number of meters	8,872	14,522
Number of hydrants	1,241	1,627
Miles of pipe	155	213
Number of pump stations	4	9
Number of storage tanks	1	2
Filter plant capacity	10 mg	25 mg
Annual operating revenue	$376,866	$870,680
Book value of plant	$5,988,939	$11,579,341

PROCEEDINGS

Seventy-Ninth Annual Convention
Poland Spring House, Poland Spring, Me.
September 18-20, 1961

The seventy-ninth annual convention of the New England Water Works Association was held at the Poland Spring House, Poland Spring, Me., on September 18-20, 1961.

The technical sessions of the convention were held in the ballroom of the Poland Spring House; the exhibits of the members of the Manufacturers' Association were shown in the ballroom and the adjoining rooms.

Monday, September 18

Morning Session

Vice-President Peter C. Karalekas in the Chair.

Chairman Karalekas. I will declare this 1961 Annual Convention open for the transaction of business.

I want to take this opportunity, gentlemen, to ask you folks to rise, so that we can pay our sincere regrets at the passing of our President, who passed away a month ago—Ken Robie. Will you all rise and stand in silence, please?

(*The members stand in silence.*)

We have prepared a memoir on Mr. Robie, and I will ask the Secretary to read it.

Secretary Knox read the following:

MEMOIR OF KENNETH W. ROBIE

The New England Water Works Association suffered the loss of its President on August 18, 1961, in the sudden death of Kenneth Waterman Robie at New London, N.H. Mr. Robie had been a member of the Association since 1937.

He was born in Boston on January 13, 1903, and graduated from the Brookline High School. In 1925 he received a Bachelor of Science degree from Massachusetts Institute of Technology. For the next ten years he was engaged in various civil engineering activities, one of the positions held being that of Chief of Party with Hartley White, a surveyor in Braintree, Mass. Subsequently Mr. Robie was employed by the Boston Transit Commission.

In 1935 he entered the service of the town of Brookline, and nine years later he was made Assistant Superintendent of the Water Department. Then in 1952 Mr. Robie became Superintendent of the Water Department, a position he held until his death. For some time he was also the Selectmen's Agent to study the operation of the Municipal Heating and Lighting Plant. In 1959 Mr. Robie was appointed Superintendent of Highways, a job he assumed in addition to his responsibilities in the Water Department.

He was a member of the American Water Works Association and the Massachusetts Highway Association, and was a registered professional engineer and land surveyor in Massachusetts. For the New England Water Works Association he compiled a comprehensive index to the Transactions and Journal, 1882-1950, and ten years later brought the index up to date, so that it covers 1882 to 1960.

Mr. Robie was a lay reader of the Protestant Episcopal Church and served as a vestryman of All Saints Church in Brookline. He is survived by his widow, Mrs. Rachel (Batson) Robie, and by two daughters, Nancy and Susan Elizabeth Robie.

CHAIRMAN KARALEKAS. Thank you, Mr. Secretary. I think it is appropriate that we send a copy of this reading to Mrs. Robie and that it be published in our JOURNAL.

The Annual Reports of the Secretary, Treasurer, Editor, Membership Committee, Finance Committee, Committee on Scholarship Fund, Committee on Committees, Committee on Legislation, and Committee on Reciprocal Relations with Institution of Water Engineers (London) where presented and accepted.

The Vice-President declared the polls closed and appointed the following as Tellers of Election: Lawrence K. Engdahl, Chairman, Sherman L. Rogers and Vernon C. Russell.

In order to comply with the requirements of the U.S. Treasury Department for making contributions to the Scholarship Fund tax-deductible, it was moved, seconded and VOTED to amend paragraph (1) of the Articles of Organization of New England Water Works Scholarship Fund by revoking the first sentence of paragraph (1) and inserting in place thereof the following sentence: "A permanent Scholarship Committee of seven members, including the Treasurer of the New England Water Works Association, be appointed before November 1 by the President and the Executive Committee to solicit and accept donations and to administer the Scholarship Fund for the purpose of advancing and improving the standards and methods of water-works practice through the members of New England Water Works Association," and to add the following new sentence to the end of said paragraph (1): "The name of this Fund shall be New England Water Works Association Scholarship Fund."

It was further VOTED to add the following paragraph, to be known as Section (5) of said Articles of Organization: "(5) If for any reason the Scholarship Committee shall recommend to the members of the Association the dissolution of the Scholarship Fund and the members vote to dissolve the same, then the assets remaining in said Scholarship Fund shall be paid over and distributed to Harvard University, to be added to the endowment funds of said institution and the income therefrom to provide scholarship aid to worthy students attending said institution with preference to be given to those students majoring in fields which would qualify them for careers in water-works practice."

On motion of E. Sherman Chase, duly seconded, it was VOTED that the Association award a Diploma of Merit to Mr. T. S. R. Winter, M.I.C.E., for his paper, "Problems in the Design

and Construction of a Large Scheme of Capital Works," published in the Journal of the Institution of Water Engineers for August, 1960.

Reports of the following technical committees were presented and accepted: Committee on Rainfall and Yield of Drainage Areas, Committee on Water Quality and Treatment, Committee on Specifications for Cast-Iron Pipe and Fittings, Committee on Standardization of Pipe Flanges and Fittings, Committee on Steel Standpipes and Elevated Tanks, Committee on Hydrant Specifications, Committee on Deep-Well Vertical Pumps, Committee on Conservation, Development and Utilization of Water Resources, Committee on Water-Works Safety Practice, Committee on Specifications for Prestressed Concrete Water-Storage Tanks, and Committee on Water Rates. The Report of the Committee on Gate Valves for Ordinary Water-Works Service was read and referred to the Executive Committee for their action. These reports are printed in this issue of the JOURNAL.

After the presentation of the Progress Report of Committee on Specifications for Cast-Iron Pipe and Fittings, there was considerable discussion in regard to the approval of Revised Specifications A 21.6 and A 21.8 for Cast-Iron Pipe Centrifugally Cast in Metal Molds and Sand-Lined Molds (respectively) for Water and Other Liquids. On motion duly made and seconded, it was VOTED that ASA A 21.6 and A 21.8 be accepted.

Afternoon Session

Vice-President Karalekas in the Chair.

Secretary Knox announced the election by the Executive Committee of the following new members: Norbert Joseph Fredette, Superintendent of Public Works, Whitman, Mass.; Albert Joseph Harding, Belmont Water Department, Belmont, Mass.; Richard C. Boutiette, Town Engineer, Reading Mass.; William A. Meagher, Vice-President, P. T. Rohm, Inc., Boston, Mass.; Alfred J. Schiff, Civil Engineer, Natick, Mass.

A paper on "Major Water-Works Improvement Program for Troy, N.Y.," prepared by Joseph C. Lawler, Partner, Camp, Dresser & McKee, Boston, Mass., and John F. Buckley, Superintendent, Water Bureau, Troy, N.Y., was read by Mr. Buckley.

A paper on "Cross-Connections in Distribution Systems" was

read by Ernest J. Sullivan, Senior Sanitary Engineer, Massachusetts Department of Public Health, Boston, Mass.

A paper on "Plastic Pipe" was read by Richard Poux, Chairman of the Northeast Regional Task Force, Thermoplastics Pipe Division, Society of the Plastics Industry, Inc., New York, N.Y.

Evening

A real square dance was held in the Playhouse, compliments of the Water and Sewage Works Manufacturers Association.

TUESDAY, SEPTEMBER 19

Morning Session

Vice-President Karalekas in the Chair.

A paper on "Wage and Salary Administration—the Foundation for Effective Management" was read by George J. Melrose, Jr., Personnel Director, The Metropolitan District, Hartford, Conn.

A paper on "Rates and Rate Structures" was read by Robert D. Mitchell, Partner, Malcolm Pirnie Engineers, New York, N.Y.

A paper on "Problems of Instrumentation in Water Works" was read by Russell H. Babcock, Manager, Water and Waste Division, The Foxboro Co., Foxborough, Mass.

WEDNESDAY, SEPTEMBER 20

Morning Session

Vice-President Karalekas in the Chair.

At the request of the Chairman, Secretary Knox read the following draft of a resolution:

RESOLUTION RELATIVE TO THE ESTABLISHMENT OF A WATER-POLLUTION CONTROL LABORATORY AND RESEARCH FACILITY

WHEREAS, The membership of the New England Water Works Association is vitally interested in the conservation, development and utilization of our water resources; and

WHEREAS, Water-pollution control is recognized as the most practical and economical means of conserving our water resources; and

WHEREAS, The Federal Water Pollution Control Act (Public Law 660), as recently amended by the 87th Congress, directs the Secretary of Health, Education, and Welfare to conduct research toward the development of practical methods for treating sewage and other waterborne wastes, and in connection therewith to establish field laboratory and research facilities, insofar as practicable, "near institutions of higher learning in which graduate training in such research might be carried out"; and

WHEREAS, Said amended Act provides for the establishment of one such facility in the northeastern area of the United States; and

WHEREAS, Several such institutions of higher learning are located in Boston and its environs, which conforms to the Act in this regard; therefore be it

RESOLVED, That the New England Water Works Association in convention assembled on this 20th day of September, 1961, at Poland Spring, Maine, respectfully requests the Secretary of Health, Education, and Welfare to give every possible consideration to the establishment of a field laboratory and research facility in Boston or its vicinity, such location in the opinion of New England Water Works Association being the most adequate and appropriate of any in the northeastern area of the Nation.

Considerable discussion followed. Upon motion of William B. Duffy, duly seconded, it was VOTED that the Association go on record in accordance with the Resolution that the Secretary had read, and that a copy of this Resolution be sent to Secretary Ribicoff and to Senators Smith and Saltonstall of Massachusetts.

A paper on "Safety in Fleet Operation" was read by William H. McGinness, Superintendent of Water Department, Cambridge, Mass.

A paper on "Safety Committee Work" was read by Kenneth E. Bender, Superintendent of Distribution, Bridgeport Hydraulic Co., Bridgeport, Conn.

A paper, "Safety from the Point of View of the State Health Department," was read by Ralph M. Soule, Chief, Water Supply Section, Massachusetts Department of Public Health, Boston, Mass.

A paper on "Safety in Water-Works Construction" was read

by John P. Hennings, Superintendent, Portland Water District, Portland, Me.

The Special Report of the Committee on Publicity was presented and accepted.

Afternoon Session

Vice-President Karalekas in the Chair.

A paper on "The Saline Water Conversion Program," prepared by Charles F. MacGowan, Director, Office of Saline Water, U.S. Department of the Interior, Washington, D.C., was read by Ernest H. Sieveka.

A paper on "Removal of Iron and Manganese from Ground Waters" was read by George G. Bogren, Partner, Weston and Sampson, Boston, Mass.

A paper on "Application of the MD-1 Seismograph in Water-Supply Development" was read by Eugene A. Hickok, General Manager, Contract Division, Geophysical Specialties Co., Hopkins, Minn.

A paper on "Geophysical Exploration for Water by Electrical Resistivity," prepared by Sherwin F. Kelly, President, Sherwin F. Kelly Geophysical Services, Inc., Amawalk, N.Y., was read by George J. Coogan of the Massachusetts Department of Public Health.

Evening Session

A social hour was held in the ballroom of the Poland Spring House and was followed by a banquet in the diningroom, both with the compliments of the Water and Sewage Works Manufacturers Association.

Vice-President Karalekas introduced William D. Monie, Chairman of the Dexter Brackett Memorial Medal Committee and the Commemorative Award Committee, to make the presentation of the awards.

AWARD OF THE DEXTER BRACKETT MEMORIAL MEDAL

WILLIAM D. MONIE. Mr. President, distinguished guests, officers, members of the New England Water Works Association, ladies and gentlemen. At the 35th Annual Convention of the New England Water Works Association, held in September, 1916, in my home town of Portland, Maine, a memorial to perpetuate the memory of Dexter Brackett was established.

I would like to quote from the report of the Committee on the Dexter Brackett Memorial, as published in the 1915 Journal of the Association:

> "The Committee believes that there should be a memorial and that the most appropriate form is a bronze medal, to be awarded each year as a prize for a meritorious paper. The prize should be valued not for its intrinsic worth but solely as a testimonial that the holder of it has contributed something which his fellow members consider of great value . . . ; also that the evidence of having received such an award will be more valuable and less likely to be deposited where it can seldom be seen if the medal is of bronze rather than of a precious metal."

For this year of 1961 the committee, consisting of Kenneth E. Bender of the Bridgeport Hydraulic Company, Harold B. Kilgore of Whitman and Howard, Engineers, and myself, have chosen as the meritorious paper published in the JOURNAL in 1960 a paper by I. Laird Newell of the Henry Souther Engineering Company and Frederick O. A. Almquist of the Connecticut State Department of Health, titled "Contamination of Ground Water by Synthetic Detergents."

Will those two gentlemen please come forward?

(*Messrs. Newell and Almquist come to head table.*)

Gentlemen, today, as in the day of Dexter Brackett, one of the most important functions of this Association is the improvement of the professional status of its members and thereby of the water-works profession. You and the other members who contribute articles to the Journal and share knowledge with others are working toward this end. We congratulate you both and hope

that each will display your medal with pride for having in the eyes of your fellow workers contributed something of value to your profession.

MR. NEWELL. Thank you.

MR. ALMQUIST. Thank you.

COMMEMORATIVE AWARD

WILLIAM D. MONIE. At the 68th Annual Convention of the Association, held at Dixville Notch, New Hampshire, an additional award was made for a meritorious paper. This award, called the Commemorative Award, is made in memory of Association members prominent in the several fields of the water-works profession—that is, in memory of a different member each year.

This year the award is made in memory of Allen Hazen, a member of the New England Water Works Association in 1892, who served as its president in 1911 and was elected an Honorary Member in 1927.

He served as Editor of the Journal of this Association from 1895 to 1897. He was the author of nine papers published in the Journal, and the author of many books on water-works subjects.

Mr. Hazen was in charge of the Massachusetts Department of Public Health Experiment Station at Lawrence, Massachusetts, from 1888 to 1893, and shortly thereafter entered private engineering practice for a long and colorful career.

It is fitting that, inasmuch as Allen Hazen was at one time in charge of the Public Health Experiment Station at Lawrence, this year's award committee selected Mr. Joseph A. McCarthy, the present chief of this experiment station, as the recipient of the Commemorative Award for his paper entitled "A Laboratory Study of Sulfamic Acid as a Vehicle for Chlorine."

Will Mr. McCarthy please come forward?

(*Mr. McCarthy comes to head table.*)

Mr. McCarthy, it is a pleasure, on behalf of the New England Water Works Association, to present to you the Commemorative Award, and the committee offers its personal congratulations.

MR. MCCARTHY. I thank you. It is entirely fitting that this award should come to the Lawrence Experiment Station. Of course, you understand that this award is not for me personally but for the entire force at the Lawrence Experiment Station.

CHAIRMAN KARALEKAS. At this time it is fitting that we present the 25-Year Award certificates. The 25-Year Award certificates are awarded annually to those members who have served a municipality or district for 25 years and have also been members of this Association for the same 25 years. We have tonight five such awards: John R. Baylis of Chicago, Ill.—Mr. Baylis I do not believe is here—Wayne F. Damon of Leominster, Mass.; Donald P. Johnston of Bangor, Maine; Lyndall K. Parker of Auburn, Maine, and Ernest E. Tankard of Berlin, New Hampshire. (*Presenting certificates to the persons named.*)

Mr. Kenneth Knowlton, vice-president, will preside for the report of the Tellers of Election.

Kenneth F. Knowlton in the Chair.

CHAIRMAN KNOWLTON. At this time we will have the report of the Tellers of Election. Mr. Engdahl will please come forward with the report.

LAWRENCE K. ENGDAHL reads:

REPORT OF THE TELLERS OF ELECTION

Total number of ballots cast	416
For PRESIDENT—Peter C. Karalekas	416
For VICE-PRESIDENT—Kenneth F. Knowlton	412
For DIRECTOR—G. Arthur Faneuf	408
For TREASURER—William P. Melley	411

Respectfully submitted,

LAWRENCE K. ENGDAHL, *Chairman*
SHERMAN L. ROGERS
VERNON C. RUSSELL

President Karalekas in the Chair.

PRESIDENT KARALEKAS. Thank you very much for this great honor. I am sure that in the future, as in the past, this great honor will go to individuals far more deserving. But I earnestly say this to you: Never has an election to this office been appreciated more than it is tonight.

It will be my job, and I shall endeavor to carry on the great work of our Association. This, of course, no man can do without the help of the Executive Committee, the Secretary and Assistant Secretary, the Water and Sewage Works Manufacturers Association, and the chairman and members of the Program Committee.

As I look ahead into the future there are several goals and objectives I would like our Association to consider. I will take just a minute to state them. I hope you will all agree and try with me to reach them.

Number one is an increase in membership. Let us each try to bring in a new member this coming year.

Number two is an effective public relations program. This could educate towns-people to appreciate the need for good water, equitable salaries for water-works personnel, and support for needed expansion of our water systems.

Number three is a training program for water-works personnel. Certification of our operators would tend to help us meet

the goals of having qualified men and adequate pay for them, and being able to recruit new, qualified personnel more easily.

To the system superintendent or foreman I say this: If you need help in your problem come to your Water Works Association. I am sure that we have someone in our midst who can help solve your problem.

As your now President I would like to inform you that, on behalf of our Association, the Past-President's Certificate will be presented to the wife of our esteemed deceased President, Kenneth Robie.

And finally I do declare this, our 79th and very delightful and happy Annual Convention of the New England Water Works Association, adjourned.

Don't forget, let's all enjoy the dancing here in this room as soon as the hotel folks get it ready.

(*Convention adjourned*)

ANNUAL REPORT OF THE SECRETARY

August 31, 1961

Mr. President, and Members of the New England Water Works Association:

The Secretary herewith submits the following report of the changes in the membership during the past fiscal year, and the general condition of the Association.

The present membership is 1,133, constituted as follows: 13 Honorary Members, 929 Members, 2 Junior Members, 146 Associate Members and 43 Corporate Members.

MEMBERSHIP

					Total
Sept. 1, 1960	Honorary Members, total				13
Sept. 1, 1960	Members, total		949		
	Withdrawals:				
	Died	18			
	Dropped	19			
	Resigned	25	62	887	
	Elections:				
	September 18, 1960	4			
	October 20, 1960	3			
	November 17, 1960	3			
	December 15, 1960	6			
	January 19, 1961	2			
	February 16, 1961	5			
	March 16, 1961	1			
	April 20, 1961	4			
	May 18, 1961	5			
	June 15, 1961	4			
	August 17, 1961	5		42	929
Sept. 1, 1960	Junior Members, total		2		2

Sept. 1, 1960	Associate Members, total		147		
	Withdrawals:				
	Dropped	2			
	Resigned	7	9	138	
	Elections:				
	October 20, 1960	2			
	December 15, 1960	1			
	January 19, 1961	2			
	April 20, 1961	1			
	May 18, 1961	1			
	August 17, 1961	1		8	146
Sept. 1, 1960	Corporate Members, total		43		
	Withdrawals:				
	Resigned	1	1	42	
	Elections:				
	August 17, 1961			1	43
	Total Membership, September 1, 1961				1,133
	Total Membership, September 1, 1960				1,154
	Loss of				21

ELECTIONS

Members

September 18, 1960—Theodore L. Chmura, Francis X. Dalton, Frank C. Gagliardi, Sr., Frederick T. LeBaron. (4)

October 20, 1960—Arthur F. Evans, Edward J. Odell, Robert B. Taylor. (3)

November 17, 1960—John R. Anderson, Paul T. Bowen, Daniel J. Hess, Jr. (3)

December 15, 1960—Alexander A. Adams, Donald Atkinson, Gerard DiFiore, James A. Johnson, R. Ernest Leffel, Charles A. Parthum. (6)

January 19, 1961—Kenneth O. Hodgson, Leonard E. Phelon. (2)

February 16, 1961—John A. Cronin, Raymond J. Donlon, Nathan S. Ellis, III, George W. Low, Henry F. Stearns. (5)

March 16, 1961—John H. Foster. (1)

April 20, 1961—William R. Dunlap, Capt. Emil G. Larson, Calvin E. Metcalf, Joseph Souza. (4)

May 18, 1961—William G. Duffey, Henry J. Keating, Charles P. Rogers, Eugene J. Teir, Daniel J. Whalen. (5)

June 15, 1961—Joseph Broslaw, Alfred F. Marcotte, James E. O'Neil, Jr., Edward G. Zahn. (4)

August 17, 1961—Daniel J. Clark, Ralph W. Crane, Walter G. Keating, Jr., Eugene J. Pelletier, Jr., Robert F. Wieners. (5)

Associate Members

October 20, 1960—Infilco, Inc. (reinstated), Orangeburg Mfg. Co. (2)

December 15, 1960—Virginia Erection Corp. (1)

January 19, 1961—Joseph Dixon Crucible Co. (reinstated), Solvay Division, Allied Chemical Corp. (2)

April 20, 1961—New England Lime Co. (1)

May 18, 1961—Buffalo Meter Co., Inc. (1)

August 17, 1961—Hankison Corp. (1)

Corporate Members

August 17, 1961—Cherry Valley and Rochdale Water Dist. (1)

WITHDRAWALS

Members

Died—Frank C. Barrows, John N. Brooks, Philip Coykendall, Kenneth P. Currie, Robert C. Dennet, Robert E. Ferguson, Emery W. Goodwin, Edwin L. Jette, Maurice A. Libby, Charles I. Lucas, Leopold J. Paradis, Frank X. Pooley, Leon H. Reed, John M. Reilly, Kenneth W. Robie, Edwin F. Rothman, Howard C. Veit, Wilfred J. Wetherbee. (18)

Dropped—Ramchandra S. Amebekar, Albert E. Bragger, Patrick B. Bresnahan, Jr., Albert H. Cooper, Thomas E. Duff, Thomas J. Fleming, Richard Gorman, Arthur V. Harrington, Thomas Hart, John J. Hoban, J. William Houle, Louis Katona, Harry Larson, Warren G. McCrillis, Chester G. Pelkey, Peter T. Peterson, Eugene F. Redlon, Francis E. Savard, John W. Warren, Jr. (19)

Resigned—James E. Barry, Harold H. Bean, Theodore B. Brink, Albert F. Brown, John B. Casazza, Thomas E. Cass, Charles L. Coburn, W. Elwin Dunn, Rolf Eliassen, Thomas P. Gallagher, Walter A. Goss, Edward H. Haley, Arthur S. Hicks, John R. Kaye, Howard V. Kitchen, William E. Lyons, Robert W. Mawney, George F. Miller, Leonard H. McKane, Anthony J. Molinaro, J. Edgar Revelle, Hamilton Rumrill, Philip B. Streander, Clifford I. Tripp, Theodore E. Veltfort. (25)

Associate Members

Dropped—Angro Painting and Service Co., W. C. Ferguson. (2)

Resigned—A. M. Byers Co., Globe Rubber Works, Inc., A. Y. McDonald Mfg. Co., Mills Engineering Co., Inc., Tomson Meter Corp., Utilities Supply Corp., Vogt Mfg. Co., Inc. (7)

Corporate Members

Resigned—Quincy Water Dept. (1)

RECEIPTS FOR THE FISCAL YEAR SEPTEMBER 1, 1960, TO AUGUST 31, 1961

Entrance fees	$ 173.00
Dues, Members of all grades	11,042.25
Interest	624.83
Advertising	5,672.04
Subscriptions	814.75
Sale of Journals	95.47
Membership Certificates	44.00
Convention registration fees	4,149.56
Miscellaneous	30.22
	$22,646.12
Less: Withholding Taxes	280.93
Total receipts	$22,365.19

There is due the Association:

Dues	337.00
Advertising	35.00
	$372.00

Respectfully submitted:

JOSEPH C. KNOX, *Secretary*

ANNUAL REPORT OF THE TREASURER

Boston, September 7, 1961

To William P. Melley, Treasurer

New England Water Works Association
Boston, Massachusetts

We have examined the statement of assets and funds and the statement of cash receipts and disbursements of the general fund and the scholarship fund of the New England Water Works Association for the year ended August 31, 1961. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

We traced all recorded receipts into the depositary banks, verified the general fund bank account and petty cash fund and the scholarship fund bank account as at August 31, 1961, and examined properly approved vouchers for all disbursements. We verified the cash on deposit in savings banks by direct communication, and the paid-up cooperative bank shares by examination at the First National Bank of Boston on September 5, 1961.

In our opinion, the accompanying statement of assets and funds and the note thereon and the related statement of cash receipts and disbursements of the general fund and the scholarship fund present fairly the financial position of the New England Water Works Association at August 31, 1961, and the recorded cash receipts and disbursements for the year then ended, on a cash basis consistent with that of the preceding year.

(*Signed*) SCOVELL, WELLINGTON & COMPANY

STATEMENT OF ASSETS AND FUNDS (EXHIBIT A)

As at August 31, 1961

Assets

Invested funds assets			
Cash in savings banks			
Boston Five Cents Savings Bank	$6,212.18		
Provident Institution for Savings	6,205.35	12,417.53	
Securities			
Braintree Co-operative Bank, 5 paid-up shares	1,000.00		
Sandwich Co-operative Bank, 10 paid-up shares	2,000.00	3,000.00	15,417.53
General fund assets			
Cash			
First National Bank of Boston		6,733.88	
In office		50.00	
		6,783.88	
Furniture and fixtures		1,180.00	7,963.88
Scholarship fund asset			
Cash, Milton Co-operative Bank			13,594.57
			$36,975.98

Funds

Invested funds			$15,417.53
General fund			
Balance, August 31, 1960		8,076.40	
Excess of disbursements over receipts, Exhibit B		(112.52)	
Balance, August 31, 1961			7,963.88
Scholarship fund, Exhibit B			13,594.57
			$36,975.98

Note: The statement above, prepared on a cash basis, includes dues received in advance, $7,054, and employees' withholding taxes, $313.94. It does not reflect the following:

Accounts receivable, dues	$337
Due on account of advertising	35
	$372

No depreciation has been taken on furniture and fixtures.

STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS (EXHIBIT B)

For the Year ended August 31, 1961

General Fund

Receipts (exclusive of dues received in advance and employees' withholding taxes)			
Initiation fees		$ 173.00	
Dues, 1960-1961 and prior years		3,988.25	
Convention registration fees		4,149.56	
Interest		624.83	
From publication of Journal			
Advertisements	5,672.04		
Subscriptions	814.75		
Sale of Journal	95.47	6,582.26	
Membership certificates		44.00	
Miscellaneous		30.22	
Total receipts			15,592.12
Disbursements			
Publication of Journal			
Printing	5,564.98		
Reporting	259.50		
Stationery and postage	342.18		
Editor's salary	750.00		
Journal Index	891.17		
Sundry	316.90	8,124.73	
General and administrative			
Salaries	5,970.00		
Certificates of membership	56.12		
Printing, postage and stationery	311.18		
Office supplies and expense	155.88		
Office rent	1,340.00		
Electricity	110.18		
Telephone and telegraph	283.92		
Auditing	150.00		
Social security taxes	276.15		
Sundry	310.79	8,964.22	
Forward		$17,088.95	15,592.12

Brought forward		$17,088.95	15,592.12
Disbursements (continued)			
Meetings and committees			
Water works school	125.00		
Printing, postage and stationery	1,484.52		
Convention expense	2,192.37		
Dinners	683.98		
Contribution to June conference	200.00		
Scholarship fund expenses	6.50		
Sundry	493.00	5,185.37	
Interest added to savings bank deposits		517.33	
Total disbursements			22,791.65
Excess of disbursements over receipts (exclusive of dues received in advance and employees' withholding taxes for current year)			(7,199.53)
Dues received in advance		7,054.00	
Employees' withholding taxes			
Receipts for current year	313.94		
Less Payments for prior year	280.93	33.01	7,087.01
Excess of disbursements over receipts, Exhibit A			(112.52)
Balance, general cash, August 31, 1960			6,896.40
Balance, general cash, August 31, 1961			
Represented by			
Cash in First National Bank of Boston		6,733.88	
Cash in office		50.00	
			$ 6,783.88

Scholarship Fund

Balance, scholarship cash, August 31, 1960			$13,102.88
Receipts			
Contributions		305.00	
Interest		486.69	791.69
			13,894.57
Disbursement—scholarship			300.00
Balance, scholarship cash, August 31, 1961			
Represented by cash in Milton Co-operative Bank, Exhibit A			$13,594.57

ANNUAL REPORT OF THE EDITOR

To the New England Water Works Association:

The Editor submits herewith his report for the year ending August 31, 1961. The financial figures, tabulated in the report, are derived from the report of the Treasurer, which contains a detailed statement of the receipts and disbursements on account of the September and December, 1960, and March and June, 1961, issues of the JOURNAL.

In Table 1 is presented a statement of the material contained in the four issues of the JOURNAL for the past year, while in Table 2 is given a comparison of the JOURNAL for the past year with those for preceding years.

TABLE 1—STATEMENT OF MATERIAL IN SEPTEMBER AND DECEMBER, 1960, AND MARCH AND JUNE, 1961, ISSUES OF THE JOURNAL OF THE NEW ENGLAND WATER WORKS ASSOCIATION

		Number of pages								
		Papers	Proceedings*	Total text	Index†	Advertisements	Cover and contents	Insert plates	Total pages	Total cuts (number)
Sept.,	1960	96	4	100	0	45	4	4	153	16
Dec.,	1960	39	57	96	10	45	4	0	155	1
Mar.,	1961	73	22	95	0	43	4	3	145	10
June,	1961	38	40	78	74	43	4	0	199	13
Total		246	123	369	84	176	16	7	652	40

* Including standards. † Including comprehensive index, 1882 to 1960.

Size. The four issues contained 652 pages, of which 369 were text.

Cost. The gross cost of the JOURNAL was $8,124.73, equivalent to $7.09 per member; the net cost was $1,542.47, equivalent to $1.35 per member.

Reprints. Reprints of papers have been furnished to authors at cost.

TABLE 2—COMPARISON OF JOURNALS OF THE NEW ENGLAND WATER WORKS ASSOCIATION
FOUR ISSUES FOR FISCAL YEAR ENDING AUGUST 31

	1952[1]	1953[2]	1954[3]	1955[4]	1956[5]	1957[6]	1958[7]	1959	1960	1961[8]
Average edition (copies printed)	1,390	1,420	1,442	1,476	1,495	1,498	1,578	1,609	1,656	1,643
Average membership	1,017	1,057	1,077	1,089	1,106	1,110	1,114	1,137	1,152	1,144
Circulation at end of year	1,283	1,331	1,334	1,357	1,387	1,427	1,421	1,446	1,458	1,435
Pages of text	463	421	436	442	457	418	473	412	367	369
Pages of text per 1,000 members	456	398	405	406	413	376	424	363	318	322
Total pages, all kinds	671	635	652	655	674	626	689	633	593	652
Total pages per 1,000 members	660	601	606	602	610	564	618	557	514	570
GROSS COST										
Total	$5,423.98	$5,865.67	$6,108.76	$5,898.97	$7,060.88	$6,842.20	$7,287.51	$7,086.29	$7,831.83	$8,124.73
Per copy	0.98	1.03	1.06	1.00	1.18	1.14	1.15	1.10	1.18	1.23
Per page	8.08	9.23	9.37	9.02	10.48	10.91	10.57	11.19	13.20	12.44
Per member	5.34	5.55	5.68	5.42	6.38	6.16	6.53	6.24	6.79	7.09
Per member per 1,000 pages	7.96	8.75	8.71	8.28	9.46	9.85	9.48	9.86	11.44	10.86
Per member per 1,000 pages of text	11.52	13.19	13.03	12.25	13.92	14.72	13.80	15.12	18.50	19.20
NET COST										
Total	$1,040.76*	$ 500.97*	$ 513.89*	$ 101.11*	$ 588.09	$ 224.26	$ 701.67	$ 184.53*	$ 992.29	$1,542.47
Per copy	0.19*	0.09*	0.09*	0.02*	0.10	0.04	0.11	0.03*	0.15	0.23
Per page	1.55*	0.79*	0.79*	0.15*	0.87	0.36	1.02	0.29*	1.67	2.36
Per member	1.02*	0.47*	0.48*	0.09*	0.53	0.20	0.63	0.16*	0.86	1.35
Per member per 1,000 pages	1.52*	0.74*	0.73*	0.14*	0.79	0.32	0.91	0.25*	1.45	2.07
Per member per 1,000 pages of text	2.20*	1.12*	1.10*	0.20*	1.16	0.48	1.33	0.39*	2.34	3.66

1. Including 16 pages of standard specifications.
2. Including 87 pages of standard specifications and recommended practice.
3. Including 71 pages of standard specifications and recommended practice.
4. Including 8 pages of standard specifications.
5. Including 27 pages of standard specifications.
6. Including 47 pages of standard specifications.
7. Including 28 pages of standard specifications.
8. Including comprehensive index, 1882 to 1960, and 57 pages of standards.
* Surplus.

Circulation. The present circulation of the JOURNAL is:

Members, all grades	1,133
Subscribers	209
Exchanges	28
Advertisers	65
Total	1,435

JOURNALS have been sent to all subscribers and to advertisers.

Respectfully submitted,

(*Signed*) GEORGE C. HOUSER, *Editor*

REPORT OF MEMBERSHIP COMMITTEE

September 15, 1961

To the New England Water Works Association:

The Association had a net loss of twenty-one members over last year.

The following figures give the membership of the past two years:

As of Sept. 1, 1960		*As of Sept. 1, 1961*	
Members	964	Members	944
Associates	147	Associates	146
Corporates	43	Corporates	43
Total	1,154	Total	1,133

Loss of 21

1961

Losses:			*Elections:*	
Members:			Members	42
Resigned	25		Associates	8
Died	18		Corporates	1
Dropped	19	62		51
Associates:				
Resigned	7			
Dropped	2	9		
Corporate:				
Resigned	1	1		
		72		

During the past several years, invitations have been sent to the superintendent or other responsible official of practically all water utilities in New England and municipalities having a population of over 500.

Despite the increasing interest in water supply problems, it still seems difficult to convince the officials of our smaller communities in New England of the advantages of joining our New England Association.

This is probably due not so much to lack of interest in water-supply problems as it is to the fact that there are four state water-works associations in New England, all of which are very active.

The cooperation of the Committee members in furnishing lists of water-works officials is deeply appreciated by the Chairman and he extends his thanks to them for their cooperation.

Respectfully submitted,

HOWARD W. ANDERSON	J. PORTER HENNINGS
JOHN J. BAFFA	FRANCIS J. O'BRIEN
DONALD C. CALDERWOOD	RICHARD S. WOODHULL

(*Signed*) GEORGE W. COFFIN, *Chairman*

REPORT OF THE FINANCE COMMITTEE

August 31, 1961

To the Executive Committee of
the New England Water Works Association

Gentlemen:

The Finance Committee herewith submits its report on the budget for the year 1960-1961, and its recommended budget for the year 1961-1962.

The Committee has examined the figures obtained from the records of the Association during the past year, and has consulted with the Treasurer concerning revenue and disbursements for the coming year.

The following tabulation is the estimated and the actual budget for the past year.

REVENUE FOR 1960-1961

	Budget	*Actual*
Entrance fees	$ 200.00	$ 173.00
Dues	11,000.00	11,042.25
Interest	525.00	624.83
Advertising	5,800.00	5,672.04
Other Journal receipts	775.00	910.22
Registration fees	3,500.00	4,149.56
Miscellaneous	100.00	74.22
Total Revenue	$21,900.00	$22,646.12

DISBURSEMENTS FOR 1960-1961

	Budget	*Actual*
General and Administrative	$ 8,700.00	$ 8,931.21
Journal	7,900.00	7,233.56
Meetings and Committees	4,600.00	4,501.39
Net expense of luncheons	900.00	683.98
Contingencies	500.00	
Journal Index	1,000.00	891.17
Total Disbursements	$23,600.00	$22,241.31

The deficit for the year was estimated at $1,700, but the year closed with a surplus of $404.81, due largely to the fact that operating expenses were held to a minimum, and the prompt payment of dues.

The invested funds of the Association are $15,417.53.

The following budget is recommended for the year 1961-1962:

REVENUE

Entrance fees	$ 200.00
Dues	11,000.00
Interest	600.00
Advertising	5,600.00
Other Journal receipts	800.00
Registration fees	3,500.00
Miscellaneous	100.00
	$21,800.00

DISBURSEMENTS

General and Administrative	$ 9,030.00
Journal	8,200.00
Meetings and Committees	4,500.00
Net expense of luncheons	900.00
Contingencies	740.00
	$23,370.00

We refer you to the Treasurer's report, which includes the report of the auditors, Scovell, Wellington & Co., for further financial details, and to the Secretary's report for changes in the membership.

Respectfully submitted,

(*Signed*) HARRY P. LOFTUS, *Chairman*
VICTOR E. MILLER
RICHARD G. PIKE

REPORT OF COMMITTEE ON SCHOLARSHIP FUND

To the New England Water Works Association:

Contributions in the amount of $305.00 to August 31, 1961, the end of our fiscal year, increased the Scholarship Fund to $12,890.06 towards the goal of a $25,000 Scholarship Fund. The amount of interest earned by the Fund which may be used for scholarship loans or grants is $704.51. A third scholarship grant of $300 was made to Robert B. Taylor, a senior at the College of Engineering, Tufts University, Medford, Massachusetts, at the March meeting of the Association at Tufts University. Mr. Taylor, a Junior Member of the Association and a former resident of Danbury, Connecticut, will attend the Graduate School of Harvard University to study for a Master's Degree in Sanitary Engineering. The Scholarship Committee thanks all contributors, particularly those who have made additional contributions, and urges all members to assist in the advancement of the water works profession by making some contribution to the Scholarship Fund.

The following contributors are to be added to the list published in the December JOURNALS of 1959 and 1960: Connecticut Water Works Association, Red Hed Manufacturing Company, Frank A. Wyskiel and R. H. White Construction Company.

Respectfully submitted,

(*Signed*) WILLIAM B. DUFFY, *Chairman*
THOMAS R. CAMP, *Vice-Chairman*
RICHARD M. CLEVELAND, *Secretary*
WILLIAM P. MELLEY, *Treasurer*
ROGER W. ESTY
HARRY M. WOOSTER
KENNETH F. KNOWLTON

REPORT OF THE COMMITTEE ON COMMITTEES

September 18, 1961

To the New England Water Works Association:

The Committee on Committees, composed of the members of the Executive Committee, has reviewed the activities of the technical committees for the past year, and recommends that the following committees be continued:

NEWWA

8 Committee on Legislation
9 Committee on Reciprocal Relations with the Institution of Water Engineers (England)
11 Committee on Survey of Ground Water Supplies in New England
12 Committee on Rainfall and Yield of Drainage Areas
16 Committee on Coefficients for Friction in Pipe Lines
19 Committee on Water Quality and Treatment
21 Committee on Specifications for Cast Iron Pipe and Fittings
22 Committee on Reinforced Concrete Pressure Pipe
23 Committee on Code for Pressure Piping
24 Committee on Laying Cast Iron Pipe
25 Committee on Specifications for Steel Pipe
26 Committee on Standardization of Pipe Flanges and Fittings
28 Committee on Steel Standpipes and Elevated Tanks
30 Committee on Meter Specifications
31 Committee on Hydrant Specifications
32 Committee on Gate Valves
37 Committee on Federal Activities
38 Committee on Fluid Permeability
39 Committee on Deep Well Vertical Pumps
42 Committee on Conservation, Development and Utilization of Water Resources
44 Committee on Publicity
45 Committee on Recreational Use of Sources of Public Water Supply
46 Committee on Plastic Pipes and Plastic Linings for Water Supply Uses

49 Committee on Water Works Safety Practice
50 Committee on Prestressed Concrete Water Storage Tanks
51 Committee on Standardization of Pressure and Vacuum Gages
52 Committee on Water Rates

The establishment of a committee to be known as *NEWWA 53*—Committee on Certification of Water Works Personnel, has been approved by the Executive Committee, the personnel to be appointed in October. The function of this committee will be to prepare guide lines for the benefit of any New England State which might wish to adopt a voluntary certification program for water-works personnel.

The work of the technical committees is of vital importance to the welfare and progress of the Association in keeping it well informed of the advances being made in the water works field.

The Committee on Committees wish to express their sincere appreciation for the time and effort put forth by the various technical committees. Suggestions relative to the creating of new committees or to the work of existing committees will be very much welcomed by the Committee on Committees.

Respectfully submitted,

COMMITTEE ON COMMITTEES

REPORT OF COMMITTEE ON RECIPROCAL RELATIONS WITH INSTITUTION OF WATER ENGINEERS (LONDON)

September 18, 1961

To the New England Water Works Association:

Your committee on Reciprocal Relations with the Institution of Water Engineers presents herewith its annual report.

Earlier in the year the committee received copies of four papers published in the Journal of the Institution for the respective years 1957, 1958, 1959 and 1960. These papers had been selected by the corresponding committee of the Institution as worthy of consideration by your committee for the award of the Diploma of Merit.

As in the past, all four papers were of high caliber, but after careful review it is the recommendation of your committee that the Diploma be awarded to Mr. T. S. R. Winter, M.I.C.E., Engineer—New Works, Tees Valley and Cleveland Water Board, for his paper, "Problems in the Design and Construction of a Large Scheme of Capital Works." This paper was published in the Journal of the Institution of Water Engineers for August, 1960.

It is the hope of the chairman of your committee that he will be able to present the Diploma in person to Mr. Winter at the Summer Meeting of the Institution in 1962. He has had that privilege in the case of three earlier recipients.

It will be of interest to members of this Association to learn that among the awards of Birthday Honours last June, that of Commander of the British Empire (C.B.E.) was given Mr. C. A. Risbridger, Water Engineer of Birmingham. Mr. Risbridger is a past president of the Institution, an Honorary Member of this Association, and a recipient of our Diploma of Merit in 1949. Those of our members who were present at the Poland

Spring Convention of 1958 will remember his cordial personality, the excellent paper he gave on current English water-works affairs, and his wittily pleasing response to his presentation with Honorary Membership.

It is with regret that we record the death on June 1, 1961, of Mr. Alan Atkinson, engineer and manager of the Manchester (England) Waterworks Undertaking. In 1955 Mr. Atkinson was awarded the Diploma of Merit of this Association for his paper, "The Re-lining of Water Mains in Situ."

It seems appropriate to insert these personal notes in an otherwise routine report. One of the objectives of your committee is to foster cordial relations with the water-works fraternity in England, and one way to foster such relations is to be interested in the well-being and advancement of our counterparts overseas.

Respectfully submitted,

(*Signed*) E. Sherman Chase, *Chairman*
Donald C. Calderwood
Percy A. Shaw

REPORT OF THE COMMITTEE ON LEGISLATION

September 18, 1961

To the New England Water Works Association:

Your Legislative Committee submits herewith its report on activities in the legislatures of the New England states during the year 1961. Sessions were held in all six states—however, your Committee members from the States of Rhode Island and Vermont report that no measures relating to water supply were enacted during this year's sessions.

CONNECTICUT

The following bill was filed and is of interest as an example of what the recreational people are attempting. The Statement of Purpose of the bill is as follows:

To reasonably increase the recreational use of the waters of the state since there is ample protection of the public health in the provisions of Sec. 25-43 b.

Bill No. 340. An Act Concerning Bathing or Swimming in Reservoirs and Tributaries.

Section 1. Subsection (a) of section 25-43 of the 1959 supplement to the general statutes is repealed and the following is substituted in lieu thereof: Any person who bathes or swims in any reservoir from which the inhabitants of any town, city or borough are supplied with water, or in any lake, pond or stream tributary to any distribution reservoir, or in any part of any lake, pond or stream tributary to any storage reservoir which part is distant less than ((two miles)) *one-half mile* measured along the flow of water from any part of such storage reservoir, and any person who casts any filthy or impure substance into any such reservoir, whether distribution or storage, or any of its tributaries, or commits any nuisance in or about it or them, shall be fined not more than one hundred dollars or imprisoned not more than six months, or both. For the purposes of this section, a

storage reservoir is defined as an artificial impoundment of substantial amounts of water, used or designed for the storage of a public water supply and the release thereof to a distribution reservoir, defined for the purposes of this section as a reservoir from which water is directly released into pipes or pipelines leading to treatment or purification facilities or connected directly with distribution mains of a public water system.

The following bills were enacted:

Senate Bill #280: An Act Concerning Relocation or Removal of Public Service Facilities from Streets Closed as Part of Redevelopment Project.

This bill authorizes a municipal redevelopment agency to order a public service company, including a water company, to relocate its facilities in a redevelopment area, with a provision for equitable sharing between the municipal agency and the public service company of the cost of relocation, the apportionment being 50% of the net cost less any betterment factor.

Senate Bill #1092: An Act Concerning the Rates, Payment, and Collection of Certain Existing Taxes.

This was the Governor's tax bill to raise additional revenue for the ensuing biennium. Under this statute the tax on gross earning of public service companies, including water companies, has been increased from 1½% to 4% (an increase of 167%) and is effective on the gross earnings after January 1, 1961. The effect of this statute will be to compel many water companies to apply for rate adjustment.

House Bill #4465. An Act Concerning Reimbursement of Public Service Companies in Connection with Flood Control Projects.

This legislation provides, in connection with the construction of a flood control project including the reservoirs thereon, that the water resources commission may compel the removal and relocation of an existing public utility facility under a formula for the sharing of the cost of the removal, or relocation, between the public service company and the water resources commission.

House Bill #4358. An Act Concerning Area Residents in Water Company Matters.

This legislation, which is aimed particularly at holding com-

panies organized under the laws of another state and controlling Connecticut operating water companies, provides that every water company shall have on its directorate at least one director who is a resident of the area served by the Company and who is not an officer or employee of the Company. As an alternate to such representation on the Board of Directors, the water company is authorized to establish an area advisory council, consisting of three or more members, appointed by the company, who are residents of the area served by the company and who are not officers or employees of the company. The water company must inform the Public Utilities Commission, within thirty days from appointment, of the names and towns of residence of the area advisory council. Water companies are directed under this legislation to "Consult and advise with the council on matters of local interest."

Conceivably this legislation, which does not extend to other kinds of public service companies but only to water companies, could be troublesome in the future, for example, in the matter of obtaining rate relief, or in controversies with respect to fluoridation of water supplies.

Maine

The following bills received passage and appear to cover matters which may be of interest to members of the Association:

Public Law 119. This gives rights to public utilities to erect temporary warning or directional signs or signals when they are doing work in highways.

Public Law 120. This permits a water utility to enter upon adjoining land to check on drainage or sewerage which may be affecting a water supply. The utility can order the matter remedied. Furthermore, the owner must have his plans approved by the water utility before he either constructs or renovates a building.

Public Law 132. This prohibits oil being placed in such a manner that it may flow into either surface waters or seep through the earth in such a way as to contaminate underground waters.

Public Law 177. This prohibits glass or metal being put into waters or being placed on ice so that it may fall into the water.

Public Law 306. This permits the municipal officers of a town or city to order an owner of property to clear up a malfunctioning sewerage system if anyone complains. The owner has ten days to do so; and in the event he fails to do so, the municipal officers can remedy the same and bill him for the cost thereof.

Public Law 336. This provides for licensing persons who deal in trimming of shade trees, but there is a provision excluding from the license employees of public utilities.

Public Law 350. This requires owners to take precautions to cover or protect wells. The final draft makes clear that ordinary trenches will not be considered as such and that a "well" shall be construed to have its usual meaning of simply an excavation for the purpose of obtaining a supply of water. At one time the bill was drafted in such a way that it could have been construed to include practically any excavation.

Public Law 295. This act sets up a Land Damage Board to hear eminent domain cases involving highways. Provision was made in the law for consideration to be given in the case of utilities to costs of relocation, salvage value, cost of removal, and value of betterments as elements of damage.

Public Law 300. This bill was initially introduced to limit substantially the rights of appeal from the Public Utilities Commission to the Law Court. However, after hearing and opposition of the initial bill, it was amended to better preserve rights of appeal. If new evidence is to be taken out, the Law Court can remand the case to take out such evidence before the Commission.

MASSACHUSETTS

The following Acts were passed at the recent session of the General Court.

Chapter 48. An Act Repealing the Provisions of Law Requiring Publication or Posting of Rules and Regulations and Orders of the Department of Public Health Relative to the Protection of Waters Used as Sources of Water Supply.

Be it enacted, etc., as follows:

Section one hundred and sixty-one of chapter one hundred and eleven of the General Laws is hereby repealed.

Chapter 522. An Act Providing for the Construction of Works and Appurtenances to Meet the Needs of the Metropolitan Water District.

Specifically the bond authorization of ten million dollars will provide funds for construction of the intake works at Wachusett Reservoir for the new tunnel now being built, also the necessary connections at Marlborough from the existing Hultman aqueduct to the new tunnel, and finally completion of various connections between the existing City Tunnel and existing surface mains.

Chapter 625. An Act Authorizing the Department of Public Health to Require the Installation and Operation of Treatment Facilities Necessary to Deliver a Safe Water Supply.

Be it enacted, etc., as follows:

Chapter 111 of the General Laws is hereby amended by inserting after section 5F, inserted by section 1 of chapter 498 of the acts of 1961, the following section:—Section 5G. The department may require by order a city, town or district maintaining a water supply to provide and operate such treatment facilities as are in its opinion necessary to insure the delivery of a safe water supply to all consumers. The supreme judicial or the superior court shall have jurisdiction in equity to enforce any such order.

Chapter 628. An Act to Authorize the City of Springfield to Increase Its Water Supply.

This measure is lengthy and your committee suggests members interested securing a copy.

The following Resolves of 1961 have a bearing on water-supply matters:

Chapter 32. Resolve Providing for an Investigation by the Water Resources Commission Relative to the Water Supply of the Berkshire County Region.

The Commission is directed to file its final report not later than the fourth Wednesday of January, 1962.

Chapter 84. Resolve Extending the Time Within Which the Water Resources Commission Shall Make Its Report of the Water-Supply Needs and Resources of the Municipalities of the County of Essex.

Period extended to the first Wednesday in December, 1962.

Chapter 94. Resolve Providing for an Investigation and Study by the Water Resources Commission of Ground Water Supplies and Future Sources in the Assabet River Watershed.

Report due on or before the last Wednesday of December, 1963.

Chapter 95. Resolve Continuing the Study by the Water Resources Commission Relative to the Water Resources in the Watershed of the Concord, Sudbury and Assabet River Valleys.

Report to be filed not later than the first Wednesday in December, 1962.

New Hampshire

There were several bills considered in the 1961 session relating to the subject of water supply and water pollution control. Those of particular interest, of course, to the members of the Association were those dealing with reimbursement to water departments required to relocate facilities because of interstate highway construction, disinfection of surface water supplies, and acquisition of land around water supplies for protection purposes.

Unfortunately, the reimbursement measure, House Bill 121, failed of passage because of concerted opposition from the State Department of Public Works and Highways and several highway-user groups.

The other two bills, which were successful, were House Bill 354, which will require the installation and operation of chlorination facilities in some fifteen or sixteen communities, and House Bill 122, which has reference to land acquisition and also provides for improvement in the trespass law.

Also dealing with the subject of water supply was House Bill 295 which authorizes the Manchester Water Works to develop additional water supply from either or both the North Branch of the Lamprey River in the towns of Candia and Deerfield, and Black Brook in the communities of Dunbarton and Goffstown.

A second important measure affecting the Manchester supply was House Bill 201 which reclassified Lake Massabesic and its tributaries as Class A waters. The bill was amended by the House Committee on Resources, Recreation and Development in order to arrange for the classification of the surface waters of the

Millers River tributaries. This is an interstate stream with the State of Massachusetts and New Hampshire action will be of assistance in the development of a comprehensive pollution control program in this watershed. Both House Bill 295 and House Bill 201 were favorably acted upon.

House Bill 82 empowers the Water Pollution Commission to seek injunctive relief in the event of violation of duly adopted stream classifications.

House Bill 85 provides that counties shall be eligible for state aid in the construction of pollution control projects. When the aid system was adopted in the 1959 session it was anticipated that counties would share in this type of assistance. However, it was later found that the statute did not clearly indicate this to be the situation. Accordingly, H. B. 85 was in the nature of perfection or clarification of the original legislation.

House 86 increases the state guarantee capacity covering the issuance of municipal bonds for the construction of pollution control projects. Originally, in 1949, the law contained a limiting capacity of five million dollars at any one time for the entire State. Later this was increased to ten million dollars and the new level is fifteen million dollars.

House Bill 120 provides for classification of the surface waters of the Piscataqua River-Great Bay watershed. This is the most important classification bill which has ever been sponsored by the Water Pollution Commission and involves an area of some 640 square miles in New Hampshire alone.

Class B-1 was the general recommendation for the tidal and fresh waters within this basin, except for those sources used for public water supply purposes for which the Class A designation was suggested. In this latter category the surface supplies for Rochester, Dover, Durham, Exeter and Newmarket are included in addition to the new Bellamy Reservoir serving Pease Air Force Base and the city of Portsmouth. As a result of classification several communities in the area will proceed with pollution control projects. Among these are Exeter, Newmarket, Rochester, Somersworth, Farmington and Salmon Falls with the cities of Dover and Portsmouth having already initiated action in this respect. Inasmuch as these are interstate waters, the State of Maine introduced similar legislation to cover its share of the

watershed and successful results followed. Completing the total program, the Navy Yard at Portsmouth has agreed to install treatment facilities which will eliminate its pollution problem.

House Bill 269 provides for local governments such as city, town or village districts to undertake the financing, construction and operation of industrial waste treatment plants.

House Bill 345 and House Joint Resolution 35 both related to the subject of aquatic nuisance control. The former provides an appropriation of $24,000 to undertake chemical control procedures to suppress the severe algae growths which have been experienced at Lake Winnisquam during the last several years.

House Bill 355, on behalf of the city of Keene, calls for classification of tributaries to the Otter Brook flood-control reservoir. The permanent pool at this project is utilized by the residents of the Keene area for swimming purposes and is under the active management of the Recreation Division of the State Forestry and Recreational Commission. Because of the recreational aspect, the bill provides for a Class B-1 classification.

Respectfully submitted,

HERMAN BURGI, JR.
JOHN W. COSTIGAN
WILLIAM A. HEALEY
JOHN H. MILLER
JOHN V. RICHARDS
LARDNER H. SHULL
(*Signed*) MARK F. CROKER, *Chairman*

REPORT OF COMMITTEE ON RAINFALL AND YIELD OF DRAINAGE AREAS

To the New England Water Works Association:

For the past thirty years it has been customary for this Committee to publish a decade of rainfall records at all rainfall stations in New England. The most recent tabulations were broken up into six volumes and cover the period 1942 through 1950 as follows:

Massachusetts	Volume 68, No. 1
Maine	Volume 69, No. 4
New Hampshire	Volume 70, No. 1
Vermont	Volume 70, No. 2
Rhode Island	Volume 70, No. 3
Connecticut	Volume 71, No. 1

Earlier tabulations of rainfall in New England may be found in the Journals of this Association as follows:

Volume 29, No. 3
Volume 35, No. 3
Volume 40, No. 2
Volume 44, No. 2

The decade from 1951 through 1960 has shown many extremes in precipitation, particularly in southern New England. Heavy rainfall was associated with Hurricane Carol in 1954 and the Diane storm of August, 1955. The drought of 1957 was particularly severe in southern New England.

It is assumed that the tabulations will be published by the Association in six parts as was done for the 1942 to 1950 period.

Through the courtesy of the Mass. Water Resources Commission, the tabulations for Massachusetts are practically complete and will be available for publication at an early date.

Through the courtesy of the United States Geological Survey, the records of many of the Maine stations have been tabulated and should be ready for publication within a year.

The assistance of public officials in the States of New Hampshire, Vermont, Rhode Island and Connecticut will be necessary in order to complete the rainfall tabulations for those States. These, however, should be completed within two years.

Respectfully submitted,

(*Signed*) RALPH M. SOULE, *Chairman*
KARL R. KENNISON
FRANCIS H. KINGSBURY
CHARLES E. KNOX
FRANCIS J. LARIVIERE
HYMAN J. STEINHURST
CLARENCE I. STERLING, JR.
HAROLD J. TOOLE
HOWARD M. TURNER
WILLIAM A. D. WURTS

REPORT OF THE COMMITTEE ON WATER QUALITY AND TREATMENT

September 18, 1961

To the New England Water Works Association:

This Committee on Water Quality and Treatment submits a brief resumé of old and new problems as well as current events which fall in the scope of this Committee.

Old Problems

Surface waters used as a source of Public Water Supplies present the same problem today as in the past. Contamination from natural products of decay plus problems arising from the greatest of all contaminators—man—must still be reckoned with.

Odor, color, taste, turbidity and bacteria are still the major stumbling blocks in treating a surface-water supply.

New England water supplies remain troublesome from the standpoint of odor, taste and the presence of soluble iron and manganese.

New Problems

Increased demands for water have necessitated the speedup in filtration rates. To obtain this increased rate, coarser filter medium is being used. Sands of 0.25 mm to 0.40 mm are being replaced by sands with an effective size of 0.60 to 1.00 mm. Greater dependency is placed upon pretreatment and chlorine to sterilize the water, due to this higher rate of filtration.

It has been reported that ground-water supplies are being contaminated by detergents, which are unaffected by natural purification processes.

Fluoridation

Fluoridation is presently a most controversial subject, and the desire to use it in many cities and towns is meeting with a great deal of opposition.

An agency within the Health Department of Massachusetts

has recently completed a survey at Danvers on the effect of drinking fluoridated water. They report a decided decrease in dental caries in the children of the town.

Current Events

The federal government has recently appropriated monies to underwrite a project to produce a cheap method to desalt sea water. The results of this project will be reported by some subsequent committee. Private firms are also working along these lines. One firm, Ionics, Incorporated, has sold many desalting units to foreign countries. The present method to desalt sea water is expensive and cannot, at the present time, compete with fresh water purification methods.

Tests have been made and a report has been published by the United States Public Health Environment Center at Cincinnati, indicating that some filtration plants in the United States are not removing all the contaminants from drinking water. They report that microscopic worms are sliding through the filter medium and getting into the drinking-water supply.

It has been reported by J. L. Smith, Water and Sewer Superintendent at Waxahachie, Texas, that water-supply taste and odors can be controlled by potassium permanganate.

It is also reported that more and more ground-water supplies are using impregnated permanganate filter media to remove soluble iron and manganese.

Respectfully submitted,

GEORGE G. BOGREN
EDWARD S. BROWN, JR.
SYLVAN C. MARTIN
EDWARD W. MOORE
CLAIR N. SAWYER
WARREN J. SCOTT
ERNEST A. SNOW, JR.
DAVID H. TURCOTTE, *Chairman*

PROGRESS REPORT OF COMMITTEE ON SPECIFICATIONS FOR CAST-IRON PIPE AND FITTINGS

September, 1961

To the New England Water Works Association:

The Committee on Specifications for Cast-Iron Pipe and Fittings (NEWWA 21) is composed of a single member who serves as NEWWA representative on ASA Sectional Committee A21—Cast-Iron Pipe and Fittings. In March, 1961, the writer was elected Chairman of the Sectional Committee. He is also continuing to serve as Vice-Chairman of Subcommittee 1—Pipe.

Three meetings of the Sectional Committee have been held in New York, Birmingham and Detroit. All meetings were attended by the writer. Revised drafts of Specifications A21.6 and A21.8 for Cast-Iron Pipe Centrifugally Cast in Metal Molds and Sand Lined Molds (respectively) for Water and Other Liquids have been approved by the committee. These revised drafts now await action by the four sponsors (AWWA, AGA, NEWWA and ASTM).

The major changes in the above revised drafts are as follows:

Scope

Pipe with Mechanical Joints is added since this joint is widely used for water service. Pipe with Push-On joints also is widely used for water service but this type of joint has not been standardized, so cannot be included in an American Standard. However, the Push-On joint pipe all have the same spigot dimensions and the weights of the bell and spigot pipe are applicable.

Pipe Shorter than Nominal Lengths

10% of the pipe on an order is allowed to be 24 inches less than the nominal laying length as in the present specifications. The revised draft allows an additional 10% to be 3 inches less than the nominal laying length. This provision is to permit spigot end preparation for the special joints, which was not formerly needed for B&S joints.

Weight

No major change is made in weight requirements except to tighten the specification somewhat by requiring the 2% under weight limit to apply not only to any order of 25 tons or more, but also to any one size of 25 tons or more included in any order.

Coating

The revised drafts require a minimum of 1 mil thickness of either coal tar or asphalt base bituminous coating for either the inside or outside of coated pipe. It recommends cement lining in accordance with ASA A21.4 for all pipe. The present specification has no requirement for coatings, merely stating it shall be specified at the time of purchase.

Hydrostatic Test

The revised drafts require a 500 psi hydrostatic test for all pipe 24″ and smaller. Also, the full test pressure must be on the pipe for a 10 second period and suitable control and recording devices must be provided to insure compliance with these requirements. The present specification permits a 400 psi test for 14″-24″ pipe of Class 23 and thinner wall thicknesses.

After considerable study, the Committee agreed that the requirement of the present specification for 30 seconds under the test pressure was not necessary and that 10 seconds is satisfactory and is comparable with the test requirements of the specifications for other types of pipe.

Physical Test Requirements

The only change is to require bursting tests and ring tests from specified grouping of pipe sizes each month. The present specification merely states that periodic bursting and ring tests shall be made so the manufacturer can certify compliance with the specification.

Appendix

The only change is to delete the formula for calculating the ME of the ring since this is not and has never been specified or required in the specification.

Tables

Mechanical Joint and Push-On joint pipe have only one outside diameter. Since their general acceptance by the water industry, the use of B&S pipe to a different outside diameter has decreased to a very small percentage. The Committee standardized on a single outside diameter for all cast iron pipe and this change is made in the B&S tables.

Tables for Mechanical Joint pipe are included, showing dimensions, thicknesses and weights in the same format as the B&S tables.

All tables are revised to include the pipe lengths presently being produced.

Revised drafts of Specifications A21.7 and A21.9 for Cast-Iron Pipe Centrifugally Cast in Metal and Sand Lined Molds (respectively) for Gas are being balloted by Subcommittee 1. These specifications parallel A21.6 and A21.8, and therefore approval by the Sectional Committee and the sponsors is anticipated in the near future.

Subcommittee 2—Joints has gone through a change in chairmanship, which has delayed its work. It is also plagued with the problem of specifications for slip-on joints.

Subcommittee 3—Fittings has made good progress and is striving to present a revised draft of Specification A21.10 this fall. When revised, this specification will be enlarged to include sizes up to 48 in.

Several years of work appear ahead for Sectional Committee A21; therefore, it appears essential that NEWWA 21 be continued.

Respectfully submitted,

(*Signed*) EDWIN B. COBB, *Chairman*

REPORT OF COMMITTEE ON STANDARDIZATION OF PIPE FLANGES AND FITTINGS

September 15, 1961

To the New England Water Works Association:

Your committee No. 26, entitled "Committee on Standardization of Pipe Flanges and Fittings," reports that during the last year it has been in continuous contact with the various subdivisions of the ASA committee B16 having to do with iron and bronze fittings and flanges.

The majority of the business of the ASA committee is of interest mainly to steam power and other specialized fields. While there is little action of interest to the water-works operator, it is felt that committee No. 26 should be retained as a watch over the changes in standards and thus be in position to safeguard the interests of the water-works industry, should the need arise.

During the past year there has been no activity in the field which was felt to be of importance to the water operator, and no direct action was taken by your committee except to review the reports of the ASA committee.

Respectfully submitted,

F. J. TURNBULL
(*Signed*) J. P. HENNINGS, *Chairman*

REPORT OF COMMITTEE ON STEEL STANDPIPES AND ELEVATED TANKS

To the New England Water Works Association:

The New England Water Works Association Committee on Steel Standpipes and Elevated Tanks in cooperation with a similar committee of the American Water Works Association has prepared a complete Revision of AWWA Standard D 102-55, "Painting and Repainting Steel Tanks, Standpipes, Reservoirs and Elevated Tanks for Water Storage," to be known as AWWA D 102-61.

This Revision is now in proper form to submit to the AWWA for further processing by that Association, which would consist of adoption by their Water Works Practice Committee, their recommendation for adoption as a Revised Standard and finally its adoption by the Executive Committee of the AWWA.

If adopted by the AWWA the next step would be to submit this Revised Standard to the NEWWA for adoption.

Respectfully submitted,

(*Signed*) GEORGE A. SAMPSON, *Chairman*

REPORT OF COMMITTEE ON HYDRANT SPECIFICATIONS

The Committee has met twice in the past year, once at the AWWA headquarters in New York and also in Detroit during the annual meeting of the AWWA.

As a result of discussions at the meetings, and some additional work by Assistant Secretary James Ramsey of AWWA, the first draft of the revision is now ready for distribution to the membership.

We feel that good progress is being made on the revision of the current hydrant standard, and it is hoped that the standard can be approved and published within a reasonable length of time.

Respectfully submitted,

(*Signed*) KENNETH J. CARL, *Chairman*
J. SAMUEL SLICER

PROGRESS REPORT OF COMMITTEE ON DEEP-WELL VERTICAL PUMPS

September, 1961

To the New England Water Works Association:

The Committee on Deep-Well Vertical Pumps (NEWWA 39) is composed of a single member, who serves as NEWWA Representative on ASA Committee B-58.

A task force of committee members on the west coast has completed substantially a Field Test Code. A draft of this code was reviewed by the writer in March of this year. At a meeting of the committee in Detroit in May, a tentative draft of the code was presented prior to submission to AWWA. Approval of the Test Code is hoped for at the January meeting of AWWA.

The revision of Parts A and B of ASA B-58.1, American Standard for Vertical Turbine Pumps, has been approved by ASA and published in the March, 1961, Journal of AWWA and June, 1961, Journal of NEWWA.

The above Test Code will become Part C of ASA B-58.1.

Until the Field Test Code is approved by ASA, NEWWA 39 should be continued.

Respectfully submitted,

(*Signed*) EDWIN B. COBB, *Chairman*

PROGRESS REPORT OF COMMITTEE ON SPECIFICATIONS FOR PRESTRESSED CONCRETE WATER-STORAGE TANKS

September, 1961

To the New England Water Works Association:

The Committee on Specifications for Prestressed Concrete Water-Storage Tanks held two meetings during the past year.

A tentative draft of a specification was reviewed page by page at the committee meetings. A revision of this tentative specification is now in the hands of the committee for final comments. The revised drafts are also being reviewed by the Natgun and Preload organizations.

A questionnaire was sent to forty-one water works known to have prestressed concrete water-storage tanks requesting information regarding experience with these tanks. Fourteen replies were received of which ten provide useful information.

Present plans of the committee are to present the proposed specifications, the results of field inspection and answers to the questionnaire together with other information at an early meeting of the Association.

The committee hopes to complete its assignment during the coming year.

Respectfully submitted,

(*Signed*) EDWIN B. COBB, *Chairman*

REPORT OF THE COMMITTEE ON CONSERVATION, DEVELOPMENT AND UTILIZATION OF WATER RESOURCES

September 18, 1961

To the New England Water Works Association:

This Committee was established by the Association in 1951 in order to keep the membership informed of current developments in water resources matters. At that time the Nation was just beginning to express concern as to the adequacy of its water resources and to attempt to formulate policy for their conservation, development and utilization. In the decade that has followed, America has become truly "water-conscious" and this Committee has reported to the Association at least annually relative to water resources programs, policy, and legislation.

During the past year the Senate Select Committee on National Water Resources completed its study and published 32 comprehensive reports which include all available material on every phase and facet of water resources conservation and use. Some of the recommendations of the Select Committee have been incorporated in the Administration legislation, designated as the "Water Resources Planning Act of 1961" (S. 2246 and H.R. 8177) and now pending in the 87th Congress. The President, in submitting the legislation, stated that "Maximum beneficial use of water rests upon comprehensive and coordinated planning by both Federal agencies and States." To achieve such planning, the legislation provides for the establishment of a Water Resources Council composed of the Secretaries of the Interior, Agriculture, Army, and Health, Education, and Welfare; the creation by the President of river basin water resources commissions; and grants to States for water resources planning.

New England continues with its extensive program of water pollution control now recognized as the easiest and most practical method of conserving and augmenting the water resources of the area. The pollution control work of the States is coordinated through the New England Interstate Water Pollution Control

Commission. Since 1956 when Federal grants for sewage treatment plant construction became available under Public Law 660, 110 municipal pollution abatement projects estimated to cost $56 million have been approved for the New England area. Thirty-six of these projects have been completed and fifty-two are under construction. Amendments to Public Law 660 recently enacted by the 87th Congress include increasing the annual appropriation for Federal construction grants from $50 million to $80 million for fiscal 1962, $90 million for 1963 and $100 million for the four succeeding years. These increased Federal grants together with State grants-in-aid for abatement projects in Maine, New Hampshire and Vermont will further accelerate the "clean-streams" program in New England.

In the matter of Congressional approval of a Northeastern Water and Related Land Resources Compact, a "consent" bill is now pending in the 87th Congress. The purpose of the Compact is to coordinate Federal and State efforts in developing the water resources in the northeastern United States in order to stimulate economic development in the region.

Under the public relations program of the Water and Sewage Works Manufacturers Association to acquaint the citizens with the vital need of constructing and enlarging water and sewage facilities, the motion picture "Pennies for Health" is being effectively used to promote community action. In connection with this program, an editorial fact sheet entitled "The Crisis is just around the . . . corner!" depicting the seriousness of the water supply and pollution problems, has recently been published for distribution.

Your Committee will continue to follow closely developments in water resources policy and legislation, and as occasion requires will advise the Association of its findings.

Respectfully submitted,

HARRY MANSON, *Chairman*
GILBERT U. GUSTAFSON
PETER C. KARALEKAS
JOSEPH C. KNOX
WALTER J. SHEA

REPORT OF COMMITTEE ON WATER-WORKS SAFETY PRACTICE

September 17, 1961

To the New England Water Works Association:

The Committee on Water-Works Safety Practice has contacted all of the water utilities in New England which are represented in the American Water Works Association.

This committee operates jointly with the New England Section Committee and the Connecticut Section Committee of the American Water Works Association. A total of 81 questionnaires were distributed for the purpose of obtaining safety records for 1960; 43 were returned, and of these, 19 agencies were eligible for Safety Awards.

The New England Section Awards were presented on March 16, 1961, at Tufts College, Medford, Massachusetts. The Connecticut Section Awards will be presented on September 28, 1961.

The past records from 1956 through 1960 for these agencies entitled to awards are presented in the tabulation appended. The average frequency rate of all of the New England agencies that participated was 29.8. This compares to the New England frequency rate in 1959 of 38.7. Although there has been an improvement, these figures indicate that considerable improvement will have to be made in order to approach the national rate of 9.4

Because of the importance of improving our safety record, it is again recommended that at least one superintendents' or chemists' "Round Table" discussion during the coming year be devoted to Water-Works Safety Practices.

Based on the safety records that were submitted, this committee made the following nominations to the American Water Works Association for the Wendell R. Ladue Award:

New England Section—American Water Works Association

Class #1—Woodland Water & Electric Co., Portland, Maine
Class #2—Brookline Water Dept., Brookline, Mass.
Class #3—No agency eligible

Connecticut Section—American Water Works Association

Class #1—Ridgefield Water Supply Co., Ridgefield, Conn.
Class #2—Ansonia Water Company, Ansonia, Conn.
Class #3—Bridgeport Hydraulic Co., Bridgeport, Conn.

Respectfully submitted,

(*Signed*) KENNETH E. BENDER, *Chairman*
HERMAN BURGI, JR.
MARK CROKER
JUSTIN HOLDEN
PHILIP HOLTON
RALPH SOULE
JAMES SWEENEY

Agency	Year	No. of lost-time injuries	No. of days lost—injuries	Permanent disabilities	Fatal injuries	Average no. of employees	Man-hours worked	Injury-frequency rate	Remarks
Connecticut									
Ansonia Water Company	1956	1	0						
Ansonia, Conn.	1957	1	40						
	1958	1	43						
	1959	0	5	0	0	14	24,568	0	Award of Merit
	1960	0	0	0	0	13	23,937	0	Award of Merit
Bridgeport Hydraulic Co.	1956	21	289	0	0	296	592,000	35.5	
Bridgeport, Conn.	1957	3	152	0	0	267	565,360	5.3	Award of Honor
	1958	9	129	0	0	238	476,000	21.0	
	1959	2	99	0	0	220	437,750	4.6	Award of Honor
	1960	3	105	0	0	218	436,000	6.9	Award of Honor
Connecticut Water Co.	1956	0	0						
(Naugatuck Division)	1957	1	40						
Naugatuck, Conn.	1958	2	2						
	1959	2	55						
	1960	0	0	0	0	15	30,000	0	Award of Merit
Connecticut Water Co.	1956	0	0						
(Northern Division)	1957	0	0						
Guilford, Conn.	1958	1	2						
	1959	2	33						
	1960	0	0	0	0	12.3	24,720	0	Award of Merit
Ridgefield Water Supply Co.	1956	0	0						
Ridgefield, Conn.	1957	0	0						
	1958	1	7						
	1959	0	0						
	1960	0	0	0	0	6	11,420	0	Award of Merit

Agency	Year	No. of lost-time injuries	No. of days lost—injuries	Permanent disabilities	Fatal injuries	Average no. of employees	Man-hours worked	Injury-frequency rate	Remarks
Maine									
Portland Water Dist.	1956	10	47½	0	0	152	347,776	28.8	
Portland, Maine	1957	16	257	0	0	161	348,665	43.0	
	1958	16	165	1	0	145	315,000	51.8	
	1959	18	579	0	0	138	293,000	61.4	
	1960	11	340	0	0	143	312,965	35.1	Award of Progress
Woodland Water & Elec. Co.	1958	0	0						
Portland, Maine	1959	0	0						
	1960	0	0	0	0	3	5,000	0	Award of Merit
Massachusetts									
Athol Department of Public	1956	2	15	1	0	15	30,000	66.7	
Works—Water Division	1959	2	14	0	0	13.7	27,482	72.7	
	1960	1	52	0	0	14	28,000	35.7	Award of Progres
Brookline Water Department	1956	0	0						
Brookline, Mass.	1957	1	107						
	1958	0	239	0	0	52	110,000	0	Award of Honor
	1959	0	230	0	0	54	108,000	0	Award of Honor
	1960	1	50	0	0	51	102,000	9.8	Award of Honor
Fall River Water Dept.	1957	8	134	0	0	63.9	127,939		
Fall River, Mass.	1958	9	119	0	0	84	156,704	57.5	
	1959	no application submitted							
	1960	3	483	0	0	82	152,865	19.6	Award of Progress
Grafton Water Co.	1956	2	61						
Grafton, Mass.	1957	1	80						

Agency	Year	No. of lost-time injuries	No. of days lost—injuries	Permanent disabilities	Fatal injuries	Average no. of employees	Man-hours worked	Injury-frequency rate	Remarks
Massachusetts (cont.)									
Grafton Water Co. (*cont.*)									
	1958	0	0	0	0	13.4	26,721		
	1959	No application submitted							
	1960	0	0	0	0	1	260	0	Award of Merit
Hingham Water Co.	1956	3	25						
Hingham, Mass.	1957	1	19						
	1958	0	0	0	0	23.9	47,832	0	Award of Merit
	1959	3	10	0	0	23	48,533½	61.8	
	1960	0	0	0	0	23.85	47,703½	0	Award of Merit
Mass. Water Works Co.	1956	0	0						
Millbury, Mass.	1957	1	80						
	1958	0	0	0	0	10	21,629	0	
	1959	No application submitted							
	1960	0	0	0	0	10	20,592	0	Award of Merit
Salem-Beverly Water Supply	1957	1	4						
Beverly, Mass.	1958	1	10	0	0	10.94	21,880	182	
	1959	0	0	0	0	11	22,000	0	Award of Merit
	1960	0	0	0	0	10.5	21,000	0	Award of Merit
West Bridgewater Water	1956	0	0	0	0				
Department	1957	0	0	0	0				
West Bridgewater, Mass.	1958	0	0	0	0	4.29	8,598	0	Award of Merit
	1959	1	30	0	0	4	8,224	121.3	
	1960	0	0	0	0	3.86	7,735	0	Award of Merit

Agency	Year	No. of lost-time injuries	No. of days lost—injuries	Permanent disabilities	Fatal injuries	Average no. of employees	Man-hours worked	Injury-frequency rate	Remarks
New Hampshire									
Berlin Water Works	1956	0	0	0	0	15	33,420	0	
Berlin, N.H.	—								
	1960	0	0	0	0	10	2,000	0	Award of Merit
Meredith Village Fire Dist. Water Department Meredith, N. H.	1960	0	0	0	0	1	2,492	0	Award of Merit
Rhode Island									
Bristol County Water Co.	1956	1	61	0	0	33	28,508	35.1	
Bristol, R. I.	1957	3	132						
	1958	0	0	0	0	29.9	58,939	0	Award of Merit
	1959	1	15	0	0	26.6	53,355	18.7	
	1960	0	0	0	0	27.2	54,469	0	Award of Merit
Vermont									
Manchester Water Dept.	1957	0	0	0	0	2	3,908	0	
Manchester, Vt.	1958	0	0	0	0	2	4,576	0	Award of Merit
	1959	No application submitted							
	1960	0	0	0	0	2	5,200	0	Award of Merit

REPORT OF COMMITTEE ON WATER RATES

September 8, 1961

To the New England Water Works Association:

The Committee on Water Rates was appointed by the Association in October, 1959.

The Committee selected as its initial activity the compilation of basic water-rate data of public water-supply agencies in New England. A data form has been drafted to permit ready comparison of data and is now being revised for distribution after January 1, 1962.

Respectfully,

(*Signed*) HYMAN J. STEINHURST, *Chairman*
JOHN C. CLIFFORD
FRANCIS J. LARIVIERE
RICHARD F. MASON
JOHN V. RICHARDS
RICHARD S. WARNER

REPORT OF NEWWA REPRESENTATIVES ON AWWA-NEWWA COMMITTEE C500 ON GATE VALVES FOR ORDINARY WATER-WORKS SERVICE

September 18, 1961

To the New England Water Works Association:

The September 19, 1960, report of the NEWWA representatives on the joint AWWA-NEWWA Committee C500 on Gate Valves recommended that approval and publication of the 1959 Tentative Standard be withheld pending action on revisions then under consideration.

A revised draft of the January 28, 1959, "Tentative" Standard was prepared, submitted to the AWWA Board of Directors and adopted by that Board as "Standard" on January 23, 1961. The principal revisions incorporated in the new "Standard" relate to Materials, Valve Ends, Manufacturers Markings and Testing requirements.

Your representatives on the joint committee recommended that the NEWWA take formal action to adopt as a "Standard" the January 28, 1961, revision of the joint committee report, now designated by the AWWA as C500-61, and that the committee be discharged.

Respectfully submitted,

RICHARD H. ELLIS, *Chairman*
J. SAMUEL SLICER, JR.

SPECIAL REPORT OF THE COMMITTEE ON PUBLICITY

To the New England Water Works Association:

On December 15, 1960, at the Statler Hilton, Boston, Mass., our first meeting was held, at which time we discussed many phases of publicity, and Mr. Kenneth E. Bender was elected secretary. It was moved, seconded, and passed to look into participation in the 1964-1965 World's Fair in New York.

At the March meeting at Tufts College of the New England Water Works Association, the committee met, and at that time I forwarded to them communications and brochures I received from Mr. Daniel Catlin, Jr., of the World's Fair Corp. After much discussion it was moved, seconded, and passed to inform the Executive Committee of our actions, because we felt it was getting out of the realm of the duties of our committee unless we had specific instructions.

In May, 1961, I was notified that our committee was selected to investigate the feasibility of either exhibiting or uniting with others in exhibiting at the 1964-1965 World's Fair. Immediately a meeting was called to be held in conjunction with the annual June Conference, June 15, 1961, at Wentworth-by-the-Sea, New Hampshire. At that meeting we discussed the matter with the executive committee and turned over to them all brochures and other information, so they could all read it. We also met with the Water and Sewage Works Manufacturers Association representative, Mr. John Stewart, who corroborated our findings, that at the present time rates for space, buildings, and other services were exorbitant and beyond everybody's financial means, and we moved, seconded, and passed a motion to put this matter on the table. We discussed a newsletter which might enlighten members on matters that were interesting, educational, or valuable in putting the New England Water Works Association and its members in the foreground. The untimely death of our president has brought this emphatically to us recently.

After observing the results of trying to get a large committee, geographically separated by extremes in distance, to

meetings, the committee adopted a resolution that the make-up of the committee consist of a general chairman with chairmen from each of the New England States, who each would have a committee from his own locale. Each committee would work independently of each other under the general direction of the general chairman, and meetings of these committees would be more accessible to the members. One committee member is to be a representative of the W.S.W.M.A.

(*Signed*) FRANCIS N. O'HARA, *Chairman*

J. EDWARD BAMBER
KENNETH E. BENDER
RICHARD N. BERRY
CLARENCE E. FERRY
JAMES J. MATERA
ALFRED A. MELIEN, JR.
JOHN P. SULLIVAN
WILLIAM A. D. WURTS

REPORT OF THE COMMITTEE ON LIBRARY

August 31, 1961

To the New England Water Works Association:

Following your Committee's recommendation of last year, the Library has acquired several new books which we believe will increase the usefulness of the Library. The books are:

Applied Hydrolgy—Linsley, Kohler and Paulhus
Ground Water—Tolman
Water Supply and Sewerage—Steel

On the basis of an appraisal which was made of the books of the Library, the Committee recommends the purchase of only one book for this year, namely

Ground Water, Its Development, Uses and Conservation—Edward E. Johnson, Inc.

It is interesting to note that, in connection with the JOURNAL of the New England Water Works Association, there has been an increase in the number of requests for specimen copies, and they have been sent to various parts of the world, including India, Italy, Finland and South America.

SYDNEY C. BEANE, *Chairman*
PAUL C. ROSS
JAMES V. TURNER

COMMITTEES OF THE NEW ENGLAND WATER WORKS ASSOCIATION, 1961-1962

NEWWA

1. *Committee on Technical Programs:* I. Laird Newell, *Chairman*, John C. Adams, Jr., Albert S. Genaske, Richard P. Grossman, Clifton E. Hodgdon, George C. Houser, John W. Hughes, E. Boyd Livesay, James J. Matera, Alexander J. Minkus, William H. McGinness, Lorrin M. Pittendreigh, John V. Richards, Darrell A. Root, Ernest A. Snow, Jr., and Ralph M. Soule.
2. *Committee on Northern New England Meeting:* Clarence L. Ahlgren.
3. *Committee on Southern New England Meeting:* William A. D. Wurts.
4. *Committee on Finances:* Victor E. Miller, *Chairman*, Richard G. Pike and Francis J. O'Brien.
5. *Committee on Membership:* George W. Coffin, *Chairman*, Howard W. Anderson, John J. Baffa, Donald C. Calderwood, John P. Hennings, Edward L. Tracy and Richard S. Woodhull.
6. *Committee on Library:* Sydney C. Beane, *Chairman*, Paul C. Ross and James V. Turner.
7. *Committee on Committees:* Peter C. Karalekas, *Chairman*, Clarence L. Ahlgren, G. Arthur Faneuf, Warren A. Gentner, Paul F. Howard, Kenneth F. Knowlton, William P. Melley, Harold B. Scales and Walter J. Shea.
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BOOK REVIEW

WATER TREATMENT FOR INDUSTRIAL AND OTHER USES (Second Edition). *By Eskel Nordell.* ix+598 pp. New York, N.Y.: Reinhold Publishing Corp., 1961. $12.00.

This volume brings up to date a comprehensive reference work on the conditioning and treatment of water supplies, which was originally published in 1951. The first edition has been expanded to include advancements in the art of water treatment and their applications. Several parts of the book have been rewritten for the sake of clarity, and chemical reactions have been written in plain English as well as in chemical notations. Many new illustrations have been added, accompanied by brief explanatory captions.

The first four chapters are devoted to water supplies, the various impurities that they may contain, and the characteristics of these impurities. Chapters 5, 6 and 7 cover industrial, commercial, institutional and municipal water uses, the effects of water impurities in these uses, and what processes may be used to remove objectionable impurities. The next two chapters describe the problems and practices relating to boiler feed waters and cooling waters. In the remaining 10 chapters, the different processes and equipment used in treating water are covered in detail. An appendix contains 43 tables of chemical factors, weights and measures, tank capacities, friction losses in pipes and fittings, etc.

The scope of the book is illustrated by the following list of chapter headings:

1. Water Supplies—Industrial and Municipal.
2. Dissolved Mineral Matter.
3. Dissolved Gases.
4. Turbidity, Sediment, Color, Organic Matter, Tastes, Odors and Microorganisms.
5. Industrial Water Conditioning.
6. Commercial and Institutional Water Conditioning.
7. Municipal Water Conditioning.

8. Boiler Feed Waters.
9. Cooling Waters.
10. Aeration.
11. Deaeration.
12. Chemical Feeders.
13. Sedimentation, Coagulation, Settling, and Filtration.
14. Iron and Manganese Removal.
15. Sodium Cation-Exchange (Zeolite) Water-Softening Process.
16. Hydrogen Cation-Exchange Processes.
17. Ion-Exchange Demineralization Processes and Distillation.
18. Cold Lime-Soda Water-Softening Processes.
19. Hot Water Softening Processes.

The volume contains 146 illustrations, together with numerous tables, as well as the 31-page appendix. A selected list of publications on water-treating materials, processes and equipment is presented in the chapter bibliographies.

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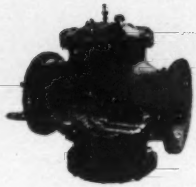

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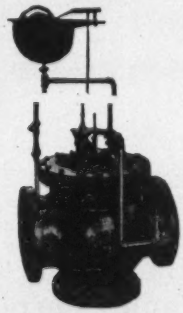

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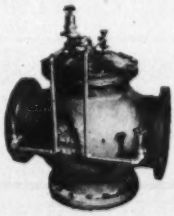

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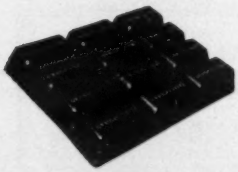

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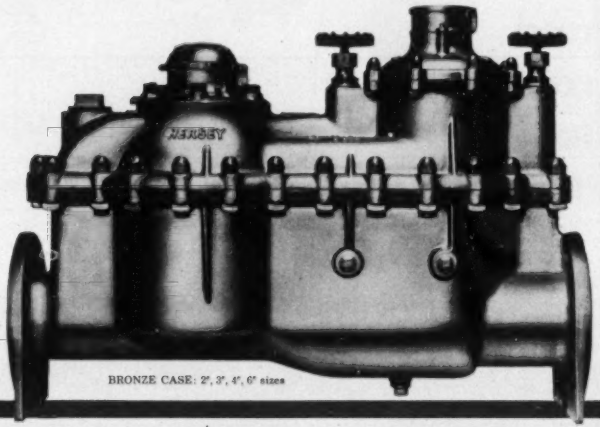

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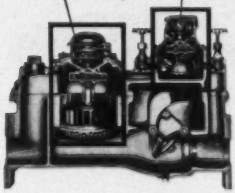

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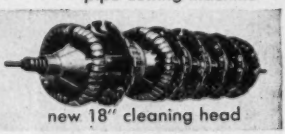

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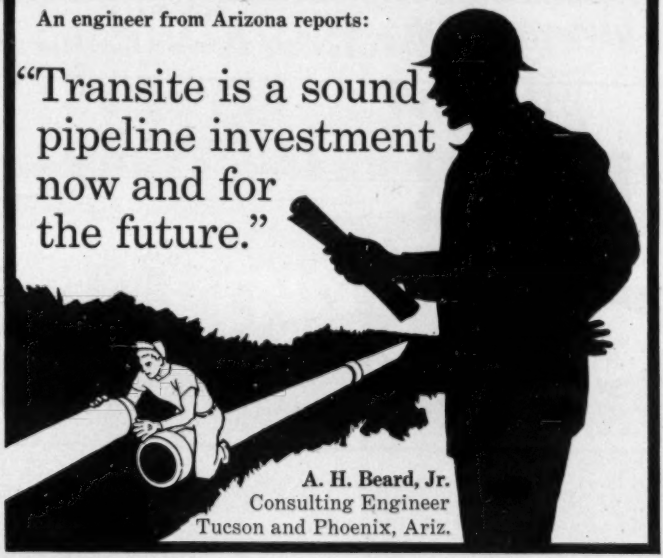

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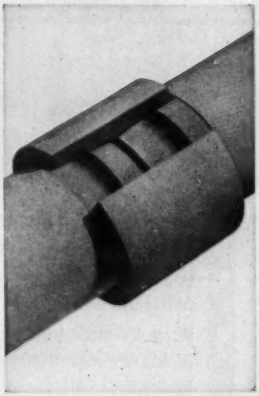

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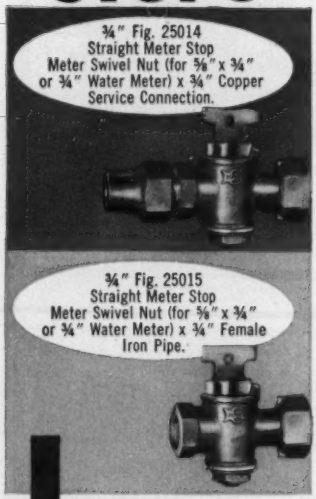
HAVE YOU SEEN

HAYS

METER STOPS


¾" Fig. 25014
Straight Meter Stop
Meter Swivel Nut (for ⅝" x ¾"
or ¾" Water Meter) x ¾" Copper
Service Connection.
¾" Fig. 25015
Straight Meter Stop
Meter Swivel Nut (for ⅝" x ¾"
or ¾" Water Meter) x ¾" Female
Iron Pipe.

- Roundway, Solid Bronze Tee Head.
- Use on either inlet or outlet of meter.
- Write for more information or Ask the Man from Hays on his next call.

GENERAL PRODUCTS DIVISION

HAYS MFG. CO.

ERIE, PENNSYLVANIA

FOR SALE

20″ Universal Used Pipe

61 pieces 6′ long Cl. 150
1—20″ x 12″ tee
1—22½° bend
1—short length 2′ long

Write City Manager at City of Barre, Vermont

NOW AVAILABLE TO KENNEDY A.W.W.A. VALVE USERS...

Complete factual information on KENNEDY A.W.W.A. VALVES and HYDRANTS

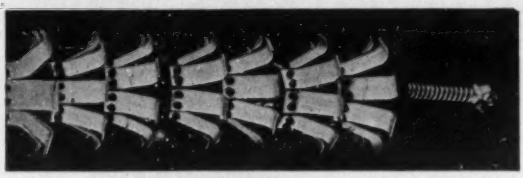
• *Write on your letterhead for your copy to:*

KENNEDY VALVE MFG. CO.
ELMIRA, NEW YORK

• OFFICE AND WAREHOUSES IN PRINCIPAL CITIES

DUCTILE IRON VALVES • CAST IRON VALVES • BRONZE VALVES • INDICATOR POSTS • FIRE HYDRANTS

50 YEARS IN 50 MINUTES



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Also, a complete sewer cleaning service is available.

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WE CAN NOW ship your requirements in all sizes of black or galvanized, steel or wrought iron pipe from stock. Genuine "Lipco" Cement Lined Pipe and Lead Lined Fittings have given and will continue to give years of trouble-free service.

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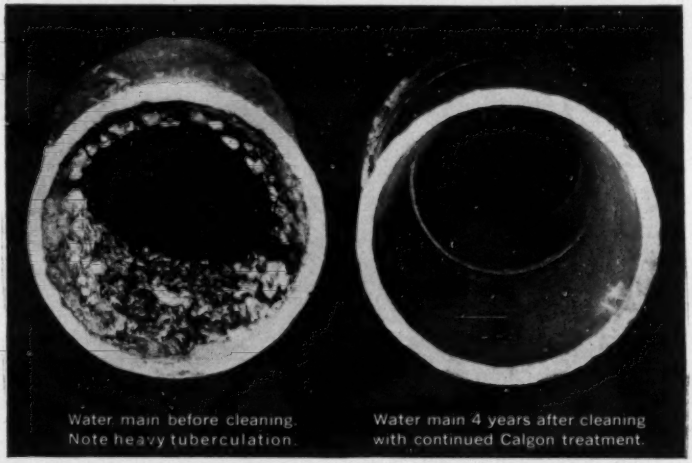
in 4-Year Portland Water District Test



Water main before cleaning. Note heavy tuberculation.

Water main 4 years after cleaning with continued Calgon treatment.

Part of the Portland, Maine, Water District System supplies Sebago Lake water to Gorham Village. An 11,000-foot, 8-inch main was the main feed between a booster station and a standpipe at the far end. This main had not been cleaned for 20 years, and it was found that the flow coefficient "C" had dropped to between 50 and 56 due to massive tuberculation.

Replacement or reinforcement of this main would be expensive, so it was decided to try cleaning a 4,000-foot section of the main, and use this as a test section to determine the effectiveness of chemical treatment to retard corrosion. Calgon® and Calgon® Composition TG were chosen for this test.

HERE ARE THE RESULTS:

Pipe line coefficient, raised from 56 to 120 by cleaning, *has remained at this level for four years with Calgon and Composition TG treatment.*

No red water complaints.

Labor and chemical costs, in relation to replacement or reinforcement of the main, *have been minor.*

A complete description of this carefully controlled test, with prescribed dosages and methods, is available—ask for Reprint No. 420-12-6. For information on how Calgon chemicals and Calgon know-how can help you, write or phone:

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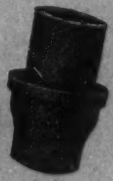
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